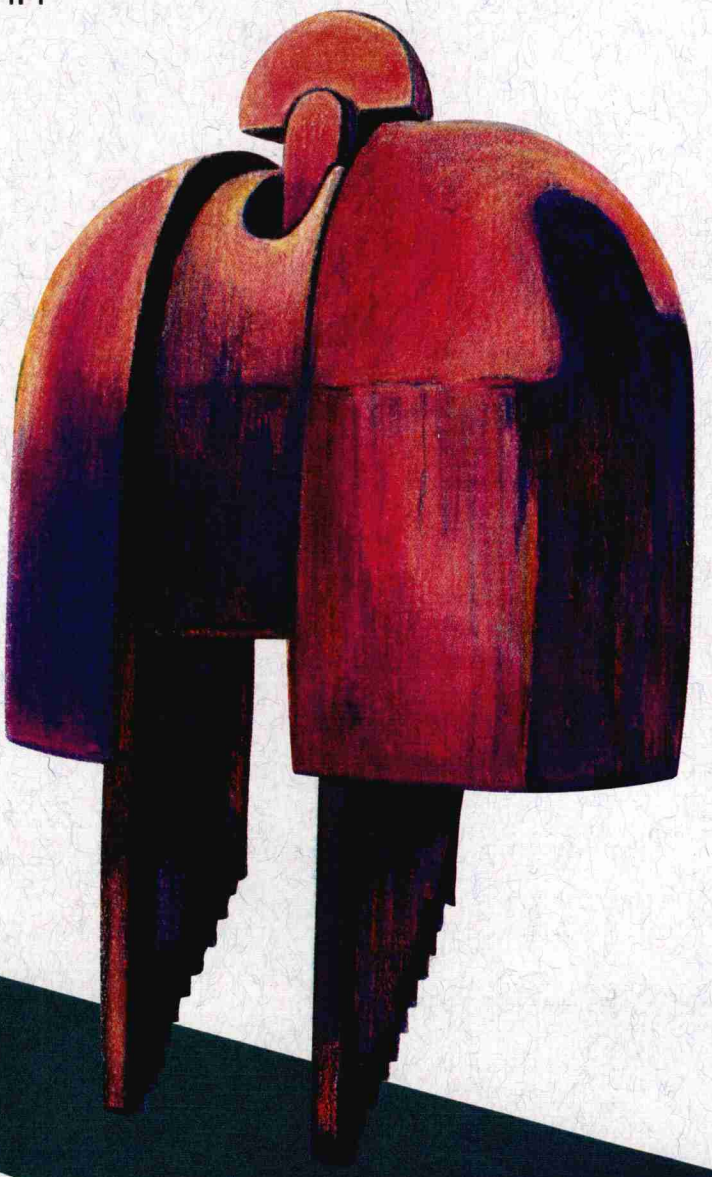
CONTEMPORARY POLICY ISSUES

An Industrial Strategy for

the Household Electrical Durables Sector

Ted Baumann



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AN INDUSTRIAL STRATEGY FOR THE HOUSEHOLD ELECTRICAL DURABLES INDUSTRY

Ted Baumann

Industrial Strategy Project
Development Policy Research Unit
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EDITORIAL COMMENT

This report is one of a series produced by the Industrial Strategy Project.

The ISP has its origins in the Economic Trends Research Group, a collective of economists and other social scientists convened by the Congress of South African Trade Unions in 1986. COSATU, under attack for its support for sanctions, initially asked these researchers to examine the impact of enforced isolation on the South African economy. It soon became clear that sanctions were a small aspect of the problems besetting the South African economy, and the work of the Economic Trends Research Group expanded into a full-blown analysis of South Africa's economic crisis.

The poor performance of South Africa's manufacturing sector loomed large in the litany of problems bedeviling the South African economy. The 1980s had been, in economic terms, something of a lost decade. The manufacturing sector was particularly conspicuous by its inability to create jobs, and to produce commodities that satisfied the divergent requirements of the domestic and international markets. A range of factors contributed to this malaise – apartheid's impact on the skills profile of the workforce, repressive and outmoded industrial relations systems and work organisation, a highly concentrated industrial structure and a concomitantly weak and repressed SME and micro-enterprise sector, and a highly inward oriented trade regime, were the most obvious sources of the crisis in manufacturing.

However, the solutions were less obvious than the problems, and in 1990, again at COSATU's initiation, the ISP was conceived. From the outset, the political environment ensured that the ISP would not be an ordinary research project. The unbanning of the ANC and the certainty of the immediate accession to power of COSATU's political ally, coupled with the union federation's increasingly direct role in policy formulation, ensured that the ISP focus closely on policy, contributing to the development of the industrial policy that would address the poor performance of South African manufacturing.

To this end, the ISP engaged a range of researchers with the purpose of undertaking detailed examinations of the key sub-sectors of South African manufacturing. The fruits of the ISP are to be found in the reports, such as this one, most of which are to be published by the UCT Press. The authors of the reports were assigned, generally for a period of 14 months, to the study of a particular sector. The researchers were required to study the local sector and the factors promoting and restraining its development. They were required to assess its prospects in the light of the likely global trajectory of the industry. Detailed examination of local firms were complemented by international visits that enabled the researchers to consult with international experts and visit factories to enable them to situate South African firms in a comparative perspective.

In addition to the sectoral studies, the ISP also engaged researchers to examine key cross-cutting issues. Those selected for study were human resource development and industrial relations, technology development, market and ownership structures, trade performance and policies, and regional industrial strategies.

Industrial policy is not a plan easily contained between the covers of a single document. It is a process, a process of engagement between the key industrial stakeholders. South Africa's peculiar transition has given concrete expression to this credo, with the tripartite National Economic Forum and the various sectoral task groups the key institutions and processes within which an evolving industrial policy is being developed. COSATU has played the leading role in this process. The ISP has, in turn, made a significant contribution to COSATU's capacities. It has done this by constant dialogue between the ISP and the COSATU leadership, and by a traineeship programme which saw a number of union leaders seconded to the ISP for its duration.

In addition the research process has engaged a range of key actors. Individual researchers have engaged with union and business leaders and experts within government. The ISP was punctuated by a series of intensive workshop attended by the researchers, COSATU and ANC leaders, and other local and international experts. The work-in-progress was thoroughly discussed and critiqued at these workshops and it is appropriate to see each report as owing a great deal to the ISP collective.

A number of researchers are continuing their work from within the industry task forces, the unions, and the structures of the new government. The ISP itself is moving into a second phase, taking up questions still unanswered, re-examining conclusions of the first phase and continuing the unending process of developing industrial policy. It is in this spirit that these reports should be read: they are not final plans, but simply attempts to start a vital process, one that will of necessity be taken forward by all of the major industry participants.

The Industrial Strategy Project was funded by generous grants from the Humanistisch Instituut Voor Ontwikkelingssamenwerking (HIVOS) of The Netherlands, the International Development Research Centre (IDRC), Ottawa, Canada, and the Olof Palme International Centre of Sweden. We benefitted not only from the financial resources of these institutions, but also from the wide-ranging experience of their staff members and their deep and abiding commitment to a democratic and prosperous South Africa.

Avril Joffe
David Kaplan
David Lewis
Raphael Kaplinsky

ISP Co-Directors
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Foreword

In the late eighties COSATU commissioned a group of economists to prepare a report analysing the impact of sanctions on the South African economy. We commissioned this work in response to criticism in the media and elsewhere that held us — through our support for sanctions — as responsible for the sorry state of the South African economy, including the miserable conditions of our members and others whose interests and aspirations we represented.

The research revealed that the crisis of the South African economy was rooted in the policies of the apartheid era and our commission to the economists was transformed into a full-scale critique of the economics of apartheid. A key consequence of the failures of apartheid's social and economic policies was its unproductive manufacturing sector. It was unable to produce basic goods of a suitable quality and at an affordable price; it was unable to produce goods that successfully penetrated international markets; it relied on low-paid, poorly-trained workers, and harsh, authoritarian shop-floor supervision; above all, it proved incapable of generating desperately-needed employment. While manufacturing's contribution to the global economy escalated, South Africa relied increasingly on its natural resource base and the cheap labour that mined and farmed it.

Appreciation of these problems inspired COSATU to request its research collective to undertake research in support of our attempt to formulate a new industrial policy. This request flowered into the Industrial Strategy Project whose output is represented in these reports.

The research process has been characterised by considerable dialogue between COSATU, its affiliates and the researchers. We have learnt much from this interaction; we are confident that we have taught the researchers much. However this work is the output of an independent research collective. As is to be expected in an arms length relationship of this kind, we do not agree with every line of each report, we do not accept every recommendation. But with regard to its major findings, we do agree that there is a real potential for building an efficient manufacturing base, rooted in well-paid, productive workers. Above all we believe, and this is endorsed by the ISP, that an independent trade union movement actively and aggressively pursuing its interest is not merely compatible with rapid and sustainable industrial development — it is a precondition.

John Gomomo
President, Congress of South African Trade Unions

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Preface

The following report is the result of 15 months' research into South Africa's household electrical durables (HED) industry, conducted for the Industrial Strategy Project (ISP) on behalf of COSATU. This was not an easy task, and I feel a little defensive as I write the preface. I still feel a bit unhappy with what is admittedly an incomplete and fragmented study.

So, before continuing, I'd like, in self-defence, to make a few points about this report. Please bear with me, and read on. It might help make sense of what follows. I'll certainly feel better knowing that you did. Otherwise at places you might wonder *what* I'm going on about.

1. Firstly, this report was written under the assumption that neither I nor the ISP will be making industrial policy for South Africa. Although the report does propose an industrial strategy of sorts, it is not intended to be a blueprint. Instead, I have assumed that the country's first popularly elected government and its appointees would make policy. I have therefore further assumed that the most important contribution the report could make would be to gather together and present the *information* which might be needed for this purpose. For that reason, this report is mainly descriptive; it is an attempt to bring together in one place and organise data in a new way. That transformation of quantity into (hopefully) quality is in itself is a contribution with which I am satisfied.

2. Secondly, the South African HED industry has been pretty difficult to research. Discussions with sympathetic listeners in South Africa and abroad have all confirmed one fundamental point: this is an industry which traditionally does not like to talk about itself. So, when reading, please bear the following in mind:

   2.1. Household electrical durables are defined by their place in households' 'consumption functions' and their common subjection to key macroeconomic variables. They are not a strictly definable grouping in terms of process technology; they and their components are produced in a variety of 'sectors', primarily electronics, electrical machinery, engineering, and chemicals. Unlike 'mining', 'paper and pulp', or 'metals', therefore, it is a misnomer to speak of the small group of firms producing HEDs in South Africa as a 'sector'. Rather, it is more appropriate to refer to them as an 'industry' or 'industries', sharing as their business the production of electrical appliances for household use. In practice, this means that the HED industry does not correspond to any standard industrial or trade classification. Only the South African Manufacturing Census includes information on the industry as defined here, but this data is from 1985 and generally spotty.

   2.2. The South African HED manufacturing industry is represented by three employer's organisations, the Radio and Television Manufacturer's Association of South Africa (RTVMSA), and the Domestic Appliance Manufacturer's Association of South Africa (DAMSA), and the Small Appliance Manufacturer's Association (SAMA). As far as I can tell these are essentially

lobbying and public relations bodies which undertake little research or information gathering except as is necessary in their ongoing battles with the BTT. Try as I may, I have been unable to get either organisation to provide essential aggregate data on things like turnover, profit, employment levels, productivity, and so on. They claim not to have it. SAMA was unfortunately not contacted during the research process as I was unaware of their existence.

2.3. Existing commercial research on this industry is scant and overwhelmingly concentrated on its consumer electronics branch. I have been unable to obtain consultancy or stock-broker's reports for the usual reasons — they cost money and in any case permission from the firms themselves is required in order to see them (see below). The one quasi-available source of information, the semi-annual Business Marketing Intelligence (BMI) Report on the Electronics Industry, is inaccurate, self-contradictory, and superficial. The local press seems interested in nothing but the TV sub-branch, which is a favourite example of the failure of apartheid economics.

2.4. These factors mean that, in effect, to get information on the HED industry one has to go to the HED *firms* themselves.

3. However:

3.1. With one exception, all of the firms in this industry are unlisted subsidiaries of major conglomerates, and do not publish financial statements.

3.2. The firms in this industry were notably secretive and unwilling to discuss, let alone disclose, information which might be regarded as sensitive, including just about everything we ISP researchers had been charged with gathering. Of the six producers of domestic appliances and four major producers of consumer electronics, only two agreed at head office level to participate in the Industrial Strategy Project. The others either refused, or only grudgingly agreed to very limited or delayed participation.

3.3. This reticence was partly due to the exceptional beating they were taking in the recessionary conditions of 1991-93. Another problem was the union connection of the Industrial Strategy Project, especially after the 1992 tussle between the National Union of Metalworkers of South Africa (NUMSA) and the Steel and Engineering Industries Federation (SEIFSA). Research abroad, however, has shown that HED firms in other countries behave similarly even in the best of times. This is because the HED market is almost always a saturated, replacement market, with firms battling for market share. Information about individual firms' production methods, capacities, or costs is thus extremely sensitive.

3.4. With some notable exceptions, I found that senior management in HED firms were unwilling to schedule multiple interviews which might allow more in-depth information gathering. As a result, I found most of my interviews to be frustrating. In particular, *time-series* data on key variables within individual firms was nearly impossible to obtain.

3.5. To this was added the problem that few of the firms gather key production information about themselves, or were only just beginning to do so.

It occurs to me that one of the fundamental objects of short-term industrial policy should be to demand reasonable public access to corporate information necessary for the rest of us to make informed decisions about policy.

A. Methods

Research was conducted by means of analysis of published and private data, studies of press clippings, and interviews and plant visits. Very few academic sources have been consulted as there are no works published on the South African HED industry and relatively few on the international industry.

B. Confidentiality

Every firm which agreed to participate in research, both South African and foreign, did so only on condition that they not be identified. Accordingly, I have given false names to the firms studied, but left data in its original form. This approach should pose no problems for the generalisability of the conclusions, since there are very few firms participating in the South African HED market.

One major but unavoidable problem with this is that some of the key sources of information which have been used cannot be referenced. In particular, several internal research reports given to me by reasonably sympathetic executives furnished crucial data which was used to construct the electrification tables in Chapter Four. Although I have attempted to spell out the assumptions and calculations underlying these tables in the text, I can only offer to share the raw data in confidence with anyone who wishes to check up on me.

C. Thanks...

I would like to thank the project co-directors, Dave Kaplan, Dave Lewis, Avril Joffee, and Raphie Kaplinsky for their guidance, support, and patience with my continual harassment; the ISP office staff, led by Nomonde Mgumane, for their help and perseverance; Chris Lloyd and Alistair Machin, for their help in organising my visit to their country — g'd on ya' mates; and all participants in the project in South Africa, Australia, and New Zealand, especially the Automotive, Metals, and Engineering Union of Australia.

A Further Note[1]

In late 1993, subsequent to this report having been written and submitted, I was approached by participants in the National Electrification Forum (NELF) to undertake further research on the South African HED industries. Although at the time I was working in the United States, I was asked by one Forum participant to prepare a tender for research on the role of the HED industries in the electrification process, which they subsequently submitted. This tender was rejected and another report was commissioned and submitted by a Johannesburg consulting firm.

After the consultant's report was submitted, the NELF participant who had asked me to write their tender sent me a copy and asked for my comments. I was disturbed by the contents, omissions, and implications of that report, and wrote a brief and quite critical commentary which was subsequently tabled at the NELF.

Shortly after my commentary had been tabled early in 1994, I received a letter from Tek Corporation, one of the major firms in the South African white goods industry. I am still unsure whether this and subsequent letters to myself and to the ISP were sent on behalf of Tek or the Domestic Appliance Manufacturer's Association (DAMSA), the employer's group in the industry. Anyway, this letter and several which followed were highly critical of certain aspects of my report, particularly Chapter Four, and expressed concern about some of my research findings, the way I had used data, and about my academic competence and professionalism. Tek essentially accused me of misinterpreting data, incompetence, and breach of confidentiality. They demanded that I inform all of the groups using the report of their concerns, which I have done.

Tek was quite right in pointing out mathematical errors in the original Chapter Four — which had been heavily reworked in the meantime — for which I accept full and sole responsibility. I reject their accusation of breach of confidentiality outright.

At the time they raised their concerns, Tek had had a copy of the original version of the report for nearly a year, yet had said nothing. For this reason, I feel that their accusations were motivated less by concern for quality research or their business interests than by a desire to discredit and/or silence me in reaction to my critical intervention in the NELF — an intervention which to my knowledge is still fully supported by the Forum participants to whom I have spoken. In any case, my NELF paper has literally nothing to do with the subject matter of Tek's objections, a point I have made to them repeatedly but which they have yet to acknowledge.

In response to their requests, I have agreed to include the following in the preface to the report:

1. Tek Corporation has objected strongly to the interpretation of the data contained in Chapter Four and to that Chapter's conclusions, and have indicated that they will comment further on the matter after publication of this document.

[1] This section represents the author's own views and is not intended to reflect the position of the Industrial Strategy Project or COSATU on the issues discussed hereunder.

2. Tek Corporation feel that I have breached confidentiality by including sensitive data supplied by their employees in a way which will allow competitors to identify them.
3. Tek Corporation questions my competence to write this report.

You can be the judge. If I have made mistakes or misinterpreted data, I can only say that I have tried to avoid this and have searched the document for any such errors. I am satisfied that this document is a creditable first attempt to describe the South African HED industries.

Executive Summary

A. Introduction: Research Area and Rationale

1. Industry Studied

This document examines the industries producing **household electrical durables (henceforth HEDs)** in South Africa. This excludes other consumer durables industries, such as automobiles, personal computers, and household furniture, but includes:

1. **Domestic Appliances** (or 'white goods') such as stoves, refrigerators, freezers, microwaves, washers, dryers, and dishwashers. Included for some purposes but excluded from detailed consideration are those items which are typically permanently installed, such as air-conditioning, geysers and heating systems. Gas, liquid, and solid-fuel powered appliances will be included.
2. **Small Appliances** such as hotplates, toasters, kettles, fans, space heaters, hairdryers, irons, vacuum cleaners, and food processors.
3. **Consumer Electronics** (or 'brown goods') include audio products such as radios, music centres, and similar equipment, and video products such as televisions, video recorders, and so on. This report will concentrate on televisions, as (i) little production of audio products or VCRs occurs, and generally firms are presently withdrawing from this, and (ii) policy towards the television is a long-running and contentious issue and deserves careful treatment.

2. Rationale

These industries were chosen for several reasons:

1. **They produce goods which are similar from the consumer's point of view.** These goods either help save domestic labour or contribute to leisure time activities, and are major — but optional — purchases for most households, often bought on credit in South Africa.
2. **They are all metal- and/or plastic-based engineering products,** with at least the potential for mass production.
3. **There could be a significant increase in demand for these goods** if there are mass housing and electrification programmes in the near future.
4. **There are significant imports of all three types of goods,** contributing to our balance of payments problems, especially when consumer spending increases — as may happen if there is a mass housing programme.

5. With the possible exception of producers of small appliances and some domestic appliances, **South African HED firms are in trouble and may not survive a relaxation of currently high import duties without a coherent set of industrial, trade, and macroeconomic policies.**

B. Chapter One: Consumption of HEDs

1. Macroeconomic Trends

1. The fortunes of the HED industry are closely linked to the overall economic health of the country, particularly movements in personal disposable incomes and private consumption expenditure. Sales of HEDs rose dramatically between 1979 and 1983, only to fall rapidly in 1984-85. A brief period of moderate growth 1986-1989 has been followed by stagnation, punctuated by a brief boost in 1990, turning to subsequent severe decline .
2. The market for white goods shrunk by nearly 9% in 1992. The market for consumer electronics products has also suffered.
3. The stock of consumer durable goods has aged considerably over the last 5-8 years. At present the real value of the HED stock is roughly the same level as in 1971.
4. The fortunes of the industry are linked closely to government policy regarding credit terms. Government has consistently intervened to limit growth of hire-purchase sales when it has appeared that HED sales have been based on credit and dissaving rather than growth in personal disposable incomes. This has resulted in two significant and sudden downturns, in 1983-84 and 1988-89.

2. Income, Electrification and HED Ownership

1. **Distribution of HEDs remains very unequal in South Africa.** In general, black ownership of major appliances is severely limited compared to whites. The divergence is less with respect to consumer electronics, but still severe.
2. **Electrification has had an impact on urban black household ownership of HEDs, but income remains the principal barrier.** Ownership of such goods decreases rapidly as income falls, even amongst households with access to electricity.
3. **Urban electrified black households remain slow to take up some appliances, particularly electric free-standing stoves.** The principal reasons for this are the ready availability of substitutes (such as coal or wood stoves); threats of electricity supply interruption; and lack of income. In other cases, recent growth in ownership has been very rapid. For the most part, however, rapid growth has been in areas such as consumer electronics where South African manufacturing is very weak and costly.
4. **The fundamental problem afflicting the HED market is the inability of black consumers to afford these products. This is a problem both of high cost products**

and low income consumers. *Both* must be addressed if the industry is to enjoy a sustainable recovery. Policy must begin with this in mind.

C. Chapter Two: Production of HEDs (Overview)

1. General Characteristics

1. The HED industry is a mixture of wholesale and retail activities, and is driven by the imperative to maintain market share and brand name/positioning in order to maintain brand premium. To an extent, this orientation discourages it from aggressively pursuing low-income markets.
2. Nevertheless, this limitation exists only in the context of inflexible manufacturing methods. More flexible methods would allow firms to produce both branded and unbranded products in the same factory.

2. Vital Signs

1. The HED industry is not especially big, either in the context of the overall economy or in the metals sector. On average, it accounts for 0,5% to 1% of most key manufacturing variables, measured nationally.
2. The HED industry has been profitable historically, but mainly in the context of high effective rates of protection. It is currently suffering significant losses. These are due both to recession and to increased competition from imports, particularly those originating in South East Asia and Southern China.
3. The HED industry has not been a major source of investment or employment growth in recent years, and is presently experiencing rapid decline in both respects. Retrenchments in the last 12-18 moths have been especially severe.

3. Competitive Outlook

1. The HED industry is a technology consumer and costly producer, and is not in a position at present to expand effectively into export markets. World HED markets are presently saturated, affected by the global recession, and marked by intense competition between global giants. Given the South African industry's technological weakness, higher cost structures, lack of an adequate component supply chain, and small size, its primary *initial* growth stimulus will come from an expanding domestic and regional market, assisted by mass housing and electrification policies. This does not mean that it cannot achieve an export orientation in time; but this will occur only on the basis of a strong local position. Export growth will probably begin on the basis of subcontracting to the global players.
2. The HED industry is in a good position to supply a growing local market, albeit at a premium to consumers. Its location, orientation towards the local market, and unused

capacity means that it will be able to respond quickly and effectively to an increase in demand.

3. Yet to survive to do so, it will require continuing nominal protection of 25% *ad valorem* — possibly more — until such time as it has undergone a process of restructuring which would allow it to compete more effectively with imports.
4. In addition, the HED industry must be encouraged to take a longer-term strategic perspective to avoid a repetition of past experience, when it has turned to imports in order to earn quick profits in an upswing.
5. Whatever happens, the prospects for employment growth in the HED industry are meagre. The industry is not likely to be a major source of employment even if it is able to capitalise on the electrification/housing process. The available manufacturing techniques which would allow the industry to be more competitive are significantly labour saving and automated.

D. Chapter Three: Global Trade in HEDs and South Africa's Position

1. Global Trends

1. Global HED import shares have shifted towards Europe and the Americas. Export shares have shifted towards the Pacific Basin, and within it away from Japan, in favour of the NICs.
2. Global markets for HEDs are dominated by large multinationals who are getting larger, both through acquisition and merger (white goods) and through concentration of market share (consumer electronics). This makes it more difficult for smaller firms to enter global markets without links to these larger entities.
3. Developed country markets for HEDs are basically saturated. Growth is through competition for market share, through aggressive production rationalisation, new products, and mergers. This requires significant R&D, marketing, and financial resources.
4. The best approach for smaller-country HED firms may be to form strategic alliances with global players to obtain access to their strengths in market access, product design, and production technology. This is the only practical route for firms who lack the in-house capacities of successful niche marketers.

a) Domestic Appliances and Small Appliances

1. The 'developing' countries have increased their share of exports of these goods significantly over the last 20 years, on the basis of lower labour costs.
2. However, recent advances in production technology have enabled developed country producers to regain ground by reducing *unit* labour costs and increasing capital

productivity. This means that new entrants will not be able to repeat the experience of the Asian players, and must be prepared to deal with best-practice technology and organisational practices.

3. Global HED markets are now more competitive than ever. Local firms wishing to compete in these markets — whether as exporters or against imports — will have to develop design capability and the capacity to reduce unit costs continuously. This has been achieved elsewhere through automation — at a cost in employment growth.

4. Marketing of domestic appliances in South Africa's closest major market, the EEC, has become particularly competitive. Smaller firms are either closing or selling out to major international producers such as Swedish giant Electrolux and United States firm Whirlpool-Phillips. This trend is due both to market saturation and to the emergence of pan-European products, produced and marketed on a larger scale than before. To compete in the EEC market or against these firms will require production capacity, turnover, and organisational capacity beyond the South African industry's current abilities, and aggressive and costly marketing strategies in an already competitive environment.

5. The only viable alternatives are (i) to follow the route of smaller, more flexible firms such as New Zealand's Fisher and Paykel, who use flexible automation technology to produce a variety of high-quality products on a mixed-model assembly-line basis; (ii) to aim for the African and South American markets; or (iii) develop closer, possibly equity, linkages with major world producers. None of these routes will be easy.

6. South African producers are linked via restrictive technology agreements to European designs, and do little product research locally. They are already 7-10 years behind world leaders and falling further every year.

7. Domestic appliances are becoming more technological, and South Africa's outdated designs will not compete on world markets. Firstly, they are being designed to use microchip technology to improve performance. Secondly, they are becoming more energy-conserving. This implies a continues 'R&D' effort to keep up with competitors. To enter world markets means being able to compete in product design as well as price.

8. Equity participation or direct investment by foreign firms should be allowed and encouraged in order to enhance the competitive environment in the appliance industry, but only if policies to encourage the restructuring of local firms are applied. The appliance industry is worth preserving.

b) Consumer Electronics

1. The world consumer electronics industry is massively dominated by giant Japanese firms, whose domination will only grow in the future. **The pace of product change, level of automation, technological complexity, and scale of organisation and inter-firm linkages needed to keep up with these firms is far beyond the capacity of independent smaller country industries.**

2. **Even as a subcontracting source for products or components to established global players, developing country producers must have exceptional technological and**

organisational capacity in order to participate in what is a fast-paced, highly flexible global supply system. Low unit labour costs also remain a factor.

3. **In general, South African producers are not presently capable of achieving these characteristics** — although there may be significant exceptions. High cost structures, small production capacity, and above all, lack of technological expertise and a viable component industry imply that further steps to achieve such capacity behind tariff barriers would be wasteful and unlikely to succeed. Thus, **South Africa should not attempt to be a producer of consumer electronics at present.**

4. **Most South African firms in the consumer electronics industry, whether in audio or television products, will not survive a relaxation of currently high tariffs.** Those that may will most likely have to concentrate on assembling simple goods for the growing segment of the market under license from overseas companies. There may be firms, however, who are able to achieve sufficient flexibility to allow them to compete successfully as electronic product assemblers more broadly. Such firms can and should be encouraged through general investment and reorganisational incentives.

5. **There is no compelling reason not to allow and encourage foreign producers of consumer electronics products to invest directly in South Africa.** This can only help the local electronics sector and existing firms. Such investment, however, must not be attracted by retaining presently extremely high rates of protection.

2. South Africa's Trade in HEDs

1. In all three product groups under study, Southern Africa is a minor player in global trade, generally importing far more than it exports. It is, however, a major importer of some products, particularly consumer electronics. Only in a few areas — generally low value-added products such as stoves — is the local market supplied *primarily* by local firms. But even in these cases protected South African products are be significantly more expensive than imports, forcing consumers to pay more.

2. Imports of HEDs have fluctuated considerably and are presently decreasing, but have tended to be the main source of supply during periods of upswing such as 1983-84. This may suggest (i) rigidity in local production and an inability to react quickly; (ii) the impact of exchange rate fluctuations, which hurt domestic producers by cheapening imports and raising the cost of imported components; and/or (iii) dumping.

3. The most likely explanation, however, is a tendency by HED firms — who are essentially wholesalers — to turn to imports as a source of quick and profitable supply during upswings. Such a tendency can only be encouraged by the unpredictability and volatility of the South African HED market.

4. South African exports of HEDs have been negligible, but have increased recently for a number of reasons, most of which do not suggest increased competitiveness. The most likely explanation is an attempt to unload excess stock, increase capacity utilisation, and take advantage of General Export Incentive Scheme (GEIS) subsidies.

5. Although South Africa is 'self-sufficient' in most of the products covered by this study, this is only because of high import duties. Average nominal tariffs for white goods and

small appliances are about 30%, whilst those for consumer electronics are in the 90% range. Duties on parts are also about 30% for domestic appliances, but in the 20%-30% for consumer electronics — implying significantly higher effective rates of protection. Surcharges play an important role in protection in some cases.

6. Tariff protection for some goods is so high, and value-added so low, that in some cases, such as TVs, it would cost the economy less to import finished goods than to import the parts needed to assemble them locally. The foreign exchange cost per job of television manufacture, in particular, means that maintaining this industry simply to preserve jobs is unjustified.

7. Effective rates of protection are high for most HEDs, and are grossly inflated for televisions. Domestic resource costs are also higher than desirable, although this may be mitigated by externalities. Again, in the case of televisions DRC is extremely high.

E. Chapter Four: Electrification and HEDs in South Africa

1. If the current tariff situation remains unchanged local value will constitute approximately 18% of additional retail sales, whilst imported value will constitute the remaining 72%. This may be altered significantly, however, if tariffs are reduced significantly, or if certain products are given over to import supply.

2. Electrification of urban black households will have a major impact on the market for HEDs, raising market values, domestic value added, and import values by 60% to 90%, depending on the rate of electrification.

3. In most cases, however, the demands of electrification should not exceed the capacities of the domestic industry to supply. Excess capacity in the industry is presently very high.

4. The primary issue to be addressed is therefore not necessarily investment in new capacity as such, but how to avoid the tendency towards excessive imports during boom periods. Policies to encourage local market share are needed if potentially devastating import bills are to be avoided.

5. Such policies must start with transparency and consistency in electrification and housing policy, which will encourage long-term investment in local supply by HED manufacturers.

6. Policy must also address the possibility of bottlenecks in the supply of variable inputs such as materials, components, and labour.

7. In addition, the boost provided by electrification may present a vital opportunity to encourage investment in more competitive manufacturing methods.

F. Chapter Five: Manufacture of HEDs in South Africa

1. The Television Industry

a) Basic Strengths and Weaknesses

1. The South African TV receiver manufacturing industry was founded in the early 1970s to supply the impending local market, and to serve as the basis for a wider electronics industry. **Extremely high rates of effective protection and restricted entry were allowed to encourage the industry to develop.**

2. **Two decades later, the industry remains essentially unchanged. Most importantly, it still cannot survive without very high protection and at a great cost to consumers and the economy.** Its net contribution to the economy is heavily negative; its products are uncompetitive with imports; and it is still a net importer of components. It has also failed to serve as the basis for a wider electronics industry, since assembly of imported components is a simple procedure which generates few skills and requires little local input.

3. **The television industry's net contribution to the economy is strongly negative.** The import content of televisions is so high, and the price of component kits so close to the price of finished products, that domestic value *cannot* be added without protection. **In short, the real site of value added is in component manufacture, which is located primarily offshore.**

4. **Perhaps most importantly, therefore, the television industry lacks an adequate local component sector.** There are insufficient economies of scale to produce major components such as CTV picture tubes locally. As a result the industry must import such higher value-added components, sourcing only simple items such as cabinets and basic electronic items locally. Moreover, most local components remain significantly more expensive than imports, and of lower quality. Licensing agreements with foreign technology partners which the government encouraged in the early 1970s have led to a situation in which component suppliers are faced with a proliferation of items required by the local market. This has further prevented them from achieving competitive volumes in specific components.

5. A related problem is that **offshore component suppliers charge a 15-18% premium on proprietary parts required for branded units.** The local industry lacks the skilled personnel and R&D infrastructure to move into manufacture of original equipment, which might liberate it from this problem.

6. **Overhead costs are higher than those for comparable plants overseas due to lower volumes.** As we have seen, however, his may be a secondary problem, and may be due primarily to the high marketing and administrative costs associated with the corporate structures involved, as well as attempts to increase margins to compensate for low volumes.

7. **Major existing firms are oriented towards production of branded products, and cannot compete with low-cost domestic assemblers who have sprung up recently.** The latter are probably aiming for a more realistic market, however, and may be serving an important purpose by posing this problem for the major firms.

8. **Manufacturers have not yet seriously moved in the direction of skills-based manufacturing flexibility, which might allow a more viable television industry.** TV production in South Africa will only survive if it is seen as a part of electronics production more broadly, since the local market is not large enough to support dedicated television plants. This implies that to survive, producer firms must develop the capacity to produce a variety of products in their plants — not just televisions.

9. In general, the television industry has served (until recently) as a source of abnormal profits for a few manufacturer/distributors. **The net cost to the economy over the next five years of television supply as presently constituted would be enormous.** This must be the prime consideration when looking at policy for the industry's future.

b) Assessment of Past Policy

1. The Board of Tariff and Trade's traditional approach to the television industry has been to attempt to use the threat of lower tariff protection to force it to increase its use of local components. It was hoped that this would increase 'real' local value added in order to reduce the industry's net drain on the economy. The initial attempt of the early 80s, which involved rebates on the use of local components, was not successful. Neither was the misguided attempt to develop a standardised monochrome chassis. The current structural adjustment programme, which seeks to penalise net foreign exchange usage and encourage more competitive pricing, has succeeded mainly in forcing less efficient producers to close down, and in flooding the market with cheap imported sets and kits. In addition, the current recession has hurt manufacturers' financial performance, leading to a situation of terminal-threat to the industry.

2. In retrospect, therefore, it can be seen that the BTT's approach has been misguided:

   2.1. The initial ground rules and conditions for the industry were extremely protective, and investment plans were naturally based on them. This did more to shape subsequent industry development than anything else.

   2.2. Moreover, these rules explicitly tied local manufacturers to foreign technology partners — who now charge them a large premium to buy the proprietary components needed for the branded products the local television industry produces. Under these conditions, it was unrealistic of the BTT to expect manufacturers to develop into competitive firms.

   2.3. Waiting 10 years to re-examine the situation only made it worse.

   2.4. It is evident that the problem of low local content cannot be solved by changing market signals only. It makes no sense to penalise local manufacturers for not using local components which are either more expensive and of a lower quality, or not available at all — and then to criticise them for not exporting.

2.5. Finally, BTT policy towards the television industry has been so unstable and unpredictable that manufacturers hesitate to invest for fear of subsequent changes.

3. In the final analysis, the television industry is not uncompetitive in what it does — assemble televisions — but it cannot be price competitive as long as the key links in the value added chain — component manufacture and research and design — are located offshore. Under such circumstances, the local television industry cannot hope to make a positive contribution to the economy.

c) An Alternative Approach

1. The BTT has never addressed the possibility of looking at the television industry within the context of a group of products which could be manufactured in flexible plants, thus reducing the overhead recovery burden on televisions. There has been a tendency to see television manufacture as a separate *industry*, when in fact it is a single *product* within the electronics industry. This has led to a tendency to see production volumes as the main problem.

2. Yet the problem of production volumes in the television industry is only a mediate problem. The proximate problem is overhead recovery. It is true that it is not possible to recover overheads on television manufacture alone, since the market is not big enough. But this is taking the wrong approach. The problem is not the product, its market, or volume. The problem is overhead recovery in a factory. The basic processes used to produce TVs are adaptable to a variety of electronic products. If a variety of products could be produced on them, overhead recovery could be spread across a greater number of units. This in turn would solve the basic *factory* problem and obviate the *product* problem.

3. Rather than focus on volume, then, an alternative policy goal should be to facilitate the attainment of flexibility sufficient to allow production of a variety of products on a small batch basis, at a competitive cost. This would require

3.1. **Training of workers in flexible, multiple skills.** This is the basic prerequisite for any restructuring of the industry.

3.2. **Reduction in change-over times** on automated equipment such as auto-insertion machines to allow maximum flexibility.

3.3. **Access to competent, motivated, innovative factory management.**

3.4. **Integration of production engineering, operations management, and basic product marketing functions *at factory level*, to allow maximum effective product diversification.**

3.5. **Treating the factory as the basic unit of business instead of the wholesaling division.** The present philosophy is a product of the brand orientation of the companies in question. Their brand price premium — in other words, the addition to ex-factory plus excise price which results from wholesaling operations — is about 25%. Low-cost producers sell direct from the factory

with out bloated marketing and administrative divisions, which enables them to sell at rock-bottom price.

3.6. This is not to say that branded, quality products should be abandoned, only that factories should be free to produce whatever they can sell. **Manufacturing should be treated as the source of value added, not the 'rent' deriving from owning a brand name. Only the former is a developable source of competitiveness in the long run.**

3.7. The traditional focus on volume in the television industry is misleading. Dedicated equipment is not necessary in this industry. Overhead recovery should be possible through product diversification. **This is only possible, however, by freeing the manufacturing division to pursue profitable alternative product lines, training workers to be flexible and innovative, and by committing financial and management resources to achieving this goal.**

3.8. **Commitment of financial and management resources by upper management to the process of flexibility achievement and product diversification is required to make such a restructuring process work.**

4. Any continued protection for this industry should be a temporary measure predicated on a commitment by managements to do just this. Otherwise the volume/price/protection linkage will never be broken. It is the opinion of this report, however, that success in this respect is unlikely.

2. The Small Appliance Industry

1. The South African small appliance industry is very small, and is effectively comprised of just two manufacturing firms.
2. It is not a significant exporter. Its products are not competitive globally, but are closer to competitiveness than the television industry.
3. When the cost-raising impact of tariffs on its inputs are considered, it is evident that the industry is not actually 'protected' at all. Average duties on finished goods are 25-30%, as are duties on most components and raw materials, which comprise 50-80% of ex-factory cost.
4. The small appliance firm studied for this report is competitive with a comparable Australian plant studied in terms of its ability to convert physical inputs into physical outputs, but is uncompetitive in terms of its overall cost structure and lead time. This is due to three factors: (i) higher input costs; (ii) unreliable suppliers and the need to maintain large stocks; (iii) high overheads due to inability to achieve economies on inflexible machinery.
5. The South African small appliance firm studied is headed in the right direction in its use of flexible work cells and just-in-time principles in order to manufacture a variety of products for a mass market. It major task is to achieve greater flexibility by investment

in more flexible fabrication equipment, in order to allow it to overcome the problem of high overheads by spreading them across more products.

6. This would be preferable to the alternative of flexibility in fabrication through increased subcontracting, which seems to be the case, at least potentially. As long as the South African economy remains in deep recession, however, the subcontracting option will be hard for firms to resist.

7. The firm studied has yet to make a definite commitment to a restructuring partnership with its workforce. Labour relations are essentially paternal, and little progress has yet been made in harnessing workers' tacit skills in order to move towards a fuller use of this resource. Although skills levels are low, the Australian case study suggests that formal skills are not as important as the development of a sense of quality-responsibility. This can only be achieved and sustained when workers are in fact responsible for the products of their labour.

a) Issues for Policy

1. The South African small appliance industry can be restructured successfully. It already possesses sufficient capacity to serve the South African market, and would do so profitably under a restructuring programme similar to that followed by the Australian firm studied. The key issues to be addressed by policy are

   1.1. the cost of inputs, including duties, and the efficiency of suppliers;

   1.2. the quality and capability of management;

   1.3. the role of labour in restructuring; and

   1.4. incentives for it to invest in a flexible future.

3. The White Goods Industry

1. White goods manufacturing in South Africa has historically been based on a mass-production model, suited to the needs of an urbanising white population who were mainly first-time buyers.

2. This encouraged investment in dedicated production machinery and standardised models for mass production. This approach is no longer suitable in conditions of significant market fragmentation between low-, middle-, and high-income buyers.

3. South African white goods producers suffer a major disadvantage in terms of overhead costs, based primarily on very low *per-product* production volumes relative to overseas plants.

4. This does not mean that the problem with the South African white goods industry is volume, however. High overheads are rather the symptom of a manufacturing process designed for mass production in a society which does not have a mass market for the kind of products for which it is suited.

5. The white goods industry does suffer significant cost disadvantages which make it uncompetitive internationally. The question is whether they can be solved, and whether the solutions are to be found inside manufacturing firms or in the external environment.

6. In nearly every product category, excess material costs are the largest single factor contributing to the price disadvantage of South African white goods versus imports.

7. Partly as a result, South African white goods are uncompetitive with imports even with duties. Nevertheless, if their value added, import savings, and cost-raising impact is taken into account, most white goods products provide a reasonable net contribution to the economy.

8. White goods firms' strategy is driven largely by the need to maintain wholesale margins, not manufacturing competitiveness as such. Manufacturing philosophy is one of 'break even'; value added is seen to arise primarily in the market as 'brand premium'.

9. The experience of the New Zealand firm visited suggests that it is possible to achieve export competitiveness on the basis of flexible production technology and a consultative approach to management, coupled with access to sufficient technological expertise to design and develop original products and processes.

10. This may be a tall order for South African firms, however — the social and political context in South Africa is radically different to New Zealand. The favourability of this context was stressed repeatedly by interviewees in the New Zealand firm.

G. Chapter Six: Policy Proposals

1. Core Opportunities

1. The present poor state of the HED industry is due to a number of factors which do not appear to be intrinsic to the products it produces or the technologies and techniques used to produce them. There is no reason, in other words, why South African cannot be competitive producers of HEDs.

2. South Africa has a relatively highly developed light engineering sector presently oriented towards the mining and agricultural sectors and to an extent the defence establishment. This industry is invaluable to further development of the manufacturing sector. A vibrant HED industry can help this industry to develop towards consumer needs.

3. South Africa does not require a high-tech HED industry. Instead, it requires an industry which is capable of flexibly producing low-cost, reliable goods appropriate to a developing country with a massive backlog in housing and urban amenities.

4. South and Southern Africa is a potentially huge market with nearly unlimited need for the products of the HED industry. Moreover, it is almost certain the a future government will undertake large-scale housing and electrification programmes which will spur market growth considerably.

5. The industry is owned by large, well-financed conglomerates which could readily afford to re-equip the industry were this warranted by market conditions.

2. Major Constraints

1. The South African HED industry is unlikely to become a major exporter in the near future.
2. The South African economy is in the midst of its worst recession since World War Two.
3. Moreover, political uncertainty will make it difficult for capital owners to justify investment in the South African market for some time to come.
4. The input supply chain of the industry is a substantial barrier to competitiveness in final product manufacture.
5. State policy towards the HED industry has been inconsistent and contradictory.
6. Unpredictable inflation and exchange rates will continue to wreak havoc with export attempts and import-intensive manufacturers. This may be one of the most serious — and least controllable — barriers to competitiveness.

3. Strengths

1. **The HED industry is here,** which gives it an advantage in terms of lead time, suitability to the local market, and service.
2. **It has faced an historical imperative for flexible production** and multi-product lines in the small local market.
3. **It has established brand names,** and linkages to overseas technology partners.
4. **It has achieved some success in local design.**
5. **In the cases of small appliance and white goods, local products are not so uncompetitive that they cannot conceivably become exportable.**
6. **Physical labour productivity is on a par with plants elsewhere in the world in some cases, indicating that South African firms are able to manufacture efficiently; whether they can do so competitively in a context of high input costs, price inflation, and long lead times is another question.**

4. Weaknesses

1. The ownership 'culture' of the major producers of HEDs is probably a significant constraint to a strategic reorientation of this industry. A short-term focus on quarterly returns is sadly misplaced in a rapidly changing competitive environment. This is perhaps the most important issue determining the success of efforts to restructure this industry.

2. South Africa lacks the human resources base to move immediately into sophisticated manufacturing of complex products, either for local consumption or export. Skills are lacking particularly in production technology and product research and design.
3. The HED industry is a technology consumer in a market where original technology is the key to competitive success.

H. What Is Worth Saving?

1. Consumer Electronics

a) Audio

1. Should foreign companies wish to invest here, they should be allowed to do so, but the protection afforded audio products should be abolished. The local industry does not have the right ingredients to achieve competitiveness, and represents a significant cost to the economy.

b) Television

1. Present levels of labour and capital employment do not justify continued protection of the television industry, which by its own admission cannot survive without it. As we have seen, the foreign exchange costs of imported television parts will be enormous over the course of a 5-year electrification programme. This report recommends the responsible withdrawal of protective duties for the television industry.
2. It may turn out that some firms will be able to produce televisions successfully as part of a flexible, multi-product manufacturing process in which capital costs are spread over a variety of other goods, as well. If so, then so be it; but given the situation with respect to import component pricing, this is unlikely. Ultimately, value added in the electronics filiere, television included, is located at the level of component manufacture.

2. White Goods and Small Appliances

1. The white goods and small appliances branches will probably be able to survive in the long term, but will require nominal protection to support a period of restructuring. This is a reasonable goal and should be adopted as policy.

I. Policy Issues and Proposals

1. The focus of industrial policy towards the HED industry, therefore, should be two-fold:

1. To ease the loss of the consumer electronics branch, and
2. To facilitate the survival and restructuring of the white goods and small appliances branches.

Further specific proposals in this regard are presented in Chapter Six.

Introduction

A. Research Area and Rationale

1. Area of Study

This study considers the industry producing *household electrical durables* (HEDs)[1] in South Africa. For the purposes of this study, HEDs will be defined as electronic and electro-mechanical household appliances and recreational goods. This definition excludes other consumer durables, such as automobiles, household furniture, and personal computers. The definition *includes*:

- **Domestic Appliances** (or 'white goods') such as stoves, refrigerators, freezers, microwaves, washers, dryers, and dishwashers. Included for some statistical purposes but excluded from detailed consideration are permanent installations, such as air-conditioning, geysers and heating systems. Although the focus of the study is on electrical products, gas, liquid, and solid-fuel powered appliances will be included for some purposes.
- **Small Appliances** such as hotplates, toasters, kettles, fans, space heaters, hairdryers, irons, vacuum cleaners, food processors, and so on.
- **Consumer Electronics** (or 'brown goods'), which are divided into two groups:

1. *audio* products such as radios, players of recorded media such as cassette or CD players, amplifiers, and combinations of these; and
2. *video* products such as televisions, video recorders, and so on.

- **Portable devices** have been included but automotive audio equipment has been excluded.[2]

2. Rationale

The household electrical durables industry was chosen for study because of its centrality in current discussions of a redistributive 'demand-led' growth path for South Africa. Many

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[1] I have tried to be consistent in using the acronymic 'HED' in this document. However, the reader should note that the terms 'durables', 'durable goods', and 'household durables' may also be used. In most cases, however, these terms are used to refer to categories more general than HEDs. I have referred to the industry under study as the 'HED industry' in the singular, and to the manufacturers of specific products, such as televisions, as 'branches'.

[2] Portables are often used in South Africa for household purposes. Automotive audio is the least 'basic need' product I can think of, and essentially an automotive component.

participants in this debate have tended assume that industries producing durable consumer products will be significant sites of employment growth and capital accumulation in a demand-led recovery. This is based on a number of unstated assumptions, however:

1. That a redistribution of income will result in increased purchases of durable goods.
2. That domestic durables manufacturers will be the main beneficiaries of such increased consumption.
3. That increased domestic production of durables will result in significantly increased employment and further investment.
4. That any costs associated with increased domestic durables production (i.e. increased imports of parts) will not negate the positive impact.

Such assumptions, however, lack empirical grounding. It was accordingly felt that a detailed study of consumer durables industries would help to clarify redistributive policies by providing them with macroeconomic and microeconomic foundations.

'Consumer durables', however, is too general an area of study, including as it does a wide range of products, from automobiles to aeroplanes. Initial research resulted in a narrowing of the field of study to the HED industry, for several reasons:

- HEDs are the class or durable good most likely to be purchased by members of the economically marginalised majority in South Africa. This is especially true now that ESKOM is proceeding with plans to electrify millions of South African households.[3]
- HEDs are similar from the consumer's point of view. These goods either help save domestic labour or contribute to leisure time activities. They are also usually major but *optional* purchases for most households, often made on credit. Accordingly, the markets for these goods are subject to similar macroeconomic influences and behave in similar ways.
- HEDs are all metal- and/or plastic-based engineering products, with the potential for mass consumption and production. As such they share similarities in terms of production methods. The primary raw materials inputs utilised by this industry, moreover, are locally abundant. Similarly, in many cases the South African engineering sector is well-placed to supply HED components.
- There are significant imports of all three types of HEDs, contributing to the economy's balance of payments problems, especially at times of buoyant consumer demand.
- In general, South African producers of HEDs are in serious trouble because of slack consumer demand. Moreover, their products are internationally uncompetitive. As presently structured, HED producers would not survive the sort of relaxation of current import duties envisaged under the Uruguay Round of the General Agreement of Tariffs and Trade (GATT).

This demarcation is not without its difficulties, however, as will be discussed below.

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[3] *Cape Times*, December 13, 1992.

B. What is the Point of Industrial Policy?

Before continuing, it is important to clarify the approach to 'industrial policy' taken in this document. The first issue to address is what industrial policy is about, for this situates the questions asked and the 'policies' suggested.

- *Public* industrial policy is *not* about strengthening industries or firms for its own sake or for the sake of the latter's owners or employees. Rather, it is about stimulating growth, employment, real income, domestic capital accumulation, foreign exchange earnings or savings, knowledge, and dynamism for the economy as a whole, for the express benefit of the people who depend on it. If *on balance* an industry cannot contribute positively in this regard, then it should go, no matter how old, impressive, or well-connected it is. Moreover, assessment of such a balance should be holistic. For example, the simple fact that an industry employs people is not sufficient grounds for protecting it, if its higher prices cost consumers *on balance* more than the income earned by those employees. Otherwise policy is simply *redistributing* income and expenditure. This does not mean that employment is not a central concern of industrial policy, only that the employment of *specific people* should not be.
- Nor is industrial policy concerned with providing goods needed by the population; it is about saving foreign exchange from being used to purchase those goods abroad, and employing residents to produce them locally, *if* this can be done 'efficiently', by adding real net value to them. If not, I assume that the goods in question should be purchased abroad and that the resources employed should be used elsewhere in the economy. This is not acceptance of the doctrine of comparative advantage, however, since it is accepted that efficiencies can be achieved and comparative advantages created.
- Finally, industrial policy is about seeing to it that these goals are met as equitably as is possible within the framework of a capitalist economy and society. In the case of our country this perforce means redressing past iniquities as well as avoiding future ones.

The demand for industrial policy is thus a derived demand, just as the need for industries and firms is a derived need (for things and leisure). The existence or non-existence of particular sectors or firms is of no inherent concern, no matter how difficult the political and social choices to be made.

This shapes the approach taken in this document. In particular, it prompts enquiry to proceed in terms of the following general questions:

- How good has the HED industry been as a provider of the things mentioned above to the South African economy and people? Alternatively, would it have been missed sorely had if not existed?
- How good is it liable to be at this task in the future, especially a future in which the environment of domestic demand and external trade is likely to change significantly? Alternatively, would it be sorely missed if it ceased to exist?

If the answer to these questions is positive, then the practice of industrial policy should be to leave well enough alone, or at least to provide what the industry says it needs to carry on its good work.[4] If not, then we must ask:

- How likely are the existing firms in this industry to improve of their own accord, under obtaining circumstances and especially in a changing future?

Again, if the answer to this last question is positive, then the function of industrial policy should be to devise and implement appropriately supportive, rather than interventionist, measures. If not, then we ask:

- Is the industry worth saving?

If the answer is yes, then we need to ask what policies are required to force the industry to get its house in order, and whether they are likely to succeed. If the answer is no, then we seek policies which will smooth the demise of the industry, and in particular which will encourage the efficient transfer of resources employed therein to other sectors.

Of course answers are unlikely to be cut-and-dried, and industries must be disaggregated. But they serve as a useful general framework for discussion. Obviously in this approach a great deal turns on an inherently *subjective* question: how likely are existing firms to change on their own? There is no way around this question, which is inevitable once one rejects the neo-classical market-will-solve-it-by-definition approach. I have tried to get to know firms well enough to answer it intelligently, and to use other indicators where possible, but in the end the answer will remain, unavoidably, an opinion — albeit a very important one.

C. Brief Background

The following two chapters will present an extensive overview of the South African HED industry. Here we will describe its history and its present situation in order to familiarise the reader with the subject of the report.

1. History to the Mid-1970s[5]

a) White Goods And Small Appliances

The production of household durables in South Africa goes back to the early 19th century, with the manufacture of coal- and wood-fired stoves by firms such as Falkirk Industries in Durban. Such firms were essentially foundries which produced a range of cast-iron products. The stoves produced in these firms were simple heating and/or cooking devices with a low technology content, and could be made using local designs. Hand-powered washing machines were also manufactured. The low value and high weight of such products made replacement of imports from Europe a simple and logical step. Many such products

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[4] Bearing in mind, of course, that they are more than likely to be rent-seekers.

[5] This section is based entirely on interviews and scattered information gleaned from company reports and profiles. This would make a very interesting topic for postgraduate research, albeit a difficult one.

are still in use today throughout South Africa on farms, in rural towns, and urban black townships. Large-scale manufacture of such goods has recently ceased with the demise of Falkirk, the country's only remaining commercial producer (*Argus*, February 1, 1992).

Towards the end of the 19th century, some local foundries began to make the transition to electrically-powered stoves, and later, fridges. At first these were imported as additional product lines, but as the local market grew, local manufacturing began as well. Generally speaking products were manufactured under license to the US and European firms with whom import licenses had been concluded, such as General Electric, Westinghouse, Electrolux, Maytag, and Kelvinator. Prior to World War One, such products had not yet attained the status of mass production commodities overseas, and existing local artisanal production methods were adapted successfully. Accordingly, high tariff protection was not necessary.

After World War One, producers in the US and Europe began to make the transition to what we know today as the 'white goods' industry. This industry was destined to become a prime 'heartland' of economic growth during the boom periods from 1922-1929 and 1948-1973. As with automobiles, the manufacture of white goods (and *pari passu* of small appliances) was based on mass production for mass consumption. This implied the adoption of standardised products, dedicated production machinery, and competitiveness through economies of scale. The white goods industry went from strength to strength throughout these periods, both contributing to and benefiting from advances in mass production techniques during World War Two. Indeed, many white goods plants began as armaments plants during the War.[6]

South African producers of these products began to feel significant pressure from US and European competitors in the early 1920s. As was the case with the automobile industry, South Africa's smaller domestic market meant that local producers could neither afford to invest in dedicated mass-production technology nor spread overhead costs as widely as their foreign counterparts. This raised their production costs and made them vulnerable to lower-price imports, even at South Africa's great distance from northern markets. Coupled with this was South Africa's inegalitarian income distribution and the continued popularity of solid-fuel cooking products, both of which served to limit the size of the domestic market. This period saw the consolidation of South Africa's white goods producers, resulting in the establishment of several still-prominent names, such as Barlows Appliance Company, Defy, Ocean, and Univa.

Along with many other industries, South Africa's white goods industry benefited from the protectionist policies initiated under the Pact government of 1924 and maintained by subsequent governments. Under this protective trade régime, South Africa's white goods producers began to evolve many of the characteristics which they retain today:

- Manufacturing was based on a mass-production model, with dedicated machinery geared towards long runs of similar parts.

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[6] As in the case of one Australian firm visited.

- Product designs were largely imported from technology partners or licensors in the US and Europe. Although certain local market characteristics (e.g. single-door fridges) emerged, little or no design was undertaken locally.
- Local products were geared towards the growing market of lower- to middle-income white urban-dwellers, while the smaller upper-income white market was served by imports of sophisticated products from technology partners. Lower-income black consumers were not directly served by local firms.
- Because of firms' origins as importers, and continuing import activities, strategy was driven by the need to maintain wholesale margins, not manufacturing competitiveness as such. Manufacturing philosophy was one of 'break even'; it was not uncommon for local production to be subsidised by margins on imported products.
- The finite size of the target market meant that once a situation of relative saturation had been reached, firms were unable to expand production to achieve internationally competitive economies of scale. Instead, they came to rely on continued tariff protection against import competition. Unlike firms in comparably-sized markets,[7] manufacturing firms did not move seriously into exports in an attempt to increase throughput. This placed an upper limit on revenue and profitability and discouraged innovative investment and marketing strategies.

Effectively, by the mid-1970s South African white goods and small appliance producers were structured into production for a small, saturated market and lacked the cost competitiveness to survive without protection. This is not to say that they were structurally 'locked' into this situation, as comparative experience has shown that it is possible for small-country white goods firms to break out of this orientation, as Fisher and Paykel in New Zealand have done. Instead, resources and imagination which elsewhere had been applied to innovative product and process engineering for increased exports were rather devoted maintaining the protective trade régime.

b) Television

Perhaps the best-known instance of 'overprotection' in the HED industry is that of televisions. Remarkably, South Africa only developed a national TV broadcasting system in the mid-1970s. Test transmissions began in 1974, while the system only became fully operational in 1982.[8] This delay relative to other countries was due only to reluctance on the part of the Nationalist government; and, when it was announced in 1971 that a TV system was to be developed, it was unsurprisingly to be under strict state control. Household TV use grew rapidly after 1976, with television license issues steady throughout the late 70s and early 80s at about 1,5m per year (BTI, 1984).[9]

From the beginning the manufacturing industry, too, was under strict government control. Most significantly, the industry 'ground rules' set out by the government in 1971 limited the

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[7] E.g. Fisher and Paykel in New Zealand.

[8] TV One was introduced in that year, whilst TV Two was introduced in 1982.

[9] This understates the number of sets in use, however, since only one license is required per household, not per set.

number of manufacturers within the Southern African Customs Union to four, "in the interests of stability". One reason given for this was to ensure system standardisation. The second reason, however, was perhaps a bit far-fetched: to ensure that the industry would serve as a training ground for technically-skilled labour for a domestic electronics sector. To support these goals, the government stipulated a number of tight conditions for the receiver manufacturing industry, to be discussed in Chapter Four.

A study of tariff protection for the infant industry had been initiated in 1971 in anticipation of the launch of the system. The Board of Trade and Industries had recommended very high nominal levels of protection for domestically-produced sets — in excess of 100%. These proposals were implemented in early 1972. The BTI stated explicitly at the time that they were "exceedingly high and...intended simply to prevent imports of television sets temporarily", until local manufacturers had had a chance to equip themselves. As such, they "should be subject to review at short notice", and furthermore, "no claim could be made for any assistance for a local industry established on the basis of these duties". Subsequently an additional 35% *ad valorem* excise duty was imposed, for budgetary reasons, on all TV sets sold. This reduced the net level of protection to 65%, still very high.

The subsequent history of the television manufacturing branch is discussed in more detail in Chapter Four. In general, it is a history of the failure of the branch to develop to the point where it could move away from the high levels of protection afforded it, or to become the skills and technology generator envisaged by the government. The reasons for this will be discussed below, but in outline they are similar to those advanced above for the white goods and small appliance branches, with one important difference. Television manufacturing in South Africa has also catered primarily for a small middle-income market, and has suffered from lack of internationally-competitive scale economies and technology dependence as a result. But in addition, it is in the unfortunate position of having to import its components in kit form for only slightly less than the cost of a fully-assembled imported set. This means that locally-added value can only arise under conditions of tariff protection. Added to this is the fact that the single most expensive component, the picture tube, cannot be manufactured profitably at the scale offered by the South African market. This has led to a series of ill-designed attempts to increase local content, all of which have been stymied by the small size of the local market and the technological dependence of South African firms.

2. The Present Situation

This situation was reasonably comfortable for producers and consumers in the period up to the early 1980s, since rising real disposable incomes encouraged rapid replacement of HEDs and reasonable turnover for the industry. A last spectacular boom during 1984 saw massive growth in sales.[10] This was followed by an equally spectacular collapse of the market during 1985, followed by a brief upturn from late 1986. By late 1989, however, the market for HEDs had entered a period of prolonged stagnation which rapidly exposed the structural weaknesses of the industry: dependence on a narrow market of middle-income white

[10] Discussed in more detail below.

consumers; uncompetitive costs structures; and a resulting inability to expand into the lower-income black market or to export.

Specific government intervention in the HED industry has been limited to general tariff policy, with the exception of the television branch, which, as a 'strategic industry', has been the subject of nearly continuous official attempts at rejuvenation. The essential thrust of all government policies towards this industry has been the same: to encourage greater local content by means of rebates on duties paid on imports of components. These have generally been calculated in terms of formulae which reward low net foreign exchange usage. At the same time, attempts have been made to reduce tariffs, which each time have been met by successful industry protest. The underlying problem identified in this report — the need to adopt leaner, more flexible manufacturing techniques and to move into production for the mass Southern African market and for export — has yet to be addressed. Simply attempting to increase local content without addressing the reasons for the smallness of the local market has not and will not suffice.

D. What Follows

The remainder of this report analyses the causes and consequences of this situation and suggests a set of policies to address it. **Chapter One** assesses the domestic market for HEDs, the macroeconomic conditions influencing it, and its prospects. **Chapter Two** surveys the HED manufacturing industry in South Africa, the general contribution of the industry to the South African economy, and its contemporary problems. **Chapter Three** surveys recent developments in the world market for HEDs, and South Africa's position in it. **Chapter Four** looks at the issues surrounding mass electrification and housing and the role of HEDs in this process. **Chapter Five** is devoted to the manufacturing industry. **Chapter Six** concludes with a set of policy proposals based on the analysis presented in the preceding chapters.

Chapter One: The Market for Household Electrical Durables in South Africa

This chapter consists of an overview of the domestic market for household electrical durables, and the macro and microeconomic conditions influencing it. It goes into relatively great detail owing to the importance placed on this factor in the conclusions and recommendations of this report.

A. Macroeconomic and Microeconomic Influences on The Market for HEDs in South Africa

1. Consumer Spending and the Role of Disposable Income in the Demand for HEDs

a) HEDs in the Macroeconomy

Dependent as it is on real household spending power, the HED industry has been critically affected by the decline in South Africa's economic performance. Indeed, of all subgroups, production of durable goods has been most severely affected by the crisis of South African manufacturing (SACOB, 1991: 16). Why? Let us consider briefly the role of household electrical durables in the macroeconomy.

Two broad macroeconomic elements shape the demand trend within which the HED industry operates: [1] the absolute level of real income available to households, and the proportion of

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[1] A brief description of the National Accounts may provide some background. If we take Gross Domestic Product (GDP) at market prices and subtract net indirect taxes, we are left with GDP at factor cost — what factors of production in South Africa receive for their use. If from this we subtract depreciation and net factor payments to the rest of the world, and add foreign interest, dividends, and other receipts by South Africans, we have Net National Disposable Income (NNDI) at factor cost — the amount of GDP which is available for use by South Africans, including households, businesses, and the government. If we then subtract from NNDI earnings of incorporated businesses and general government, we are left with the net national disposable income of *households*. To this we can then add transfers to households from the government, incorporated businesses, and abroad, to give a figure for the current personal income of South Africans — the amount households receive before direct (i.e. income) taxes. After subtracting income taxes, we are left with Personal Disposable Income — PDI. Some PDI is spent by households on transfers to government and abroad. Some goes to personal savings. Because what remains is, by this definition, spent, it is called Private Consumption Expenditure, or PCE. PCE is the amount actually spent on goods and services by households. If we

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this real income which is available to be spent on purchases of durable goods. Amongst the most important factors which influence the latter proportion are (i) the demand for and remuneration of the factor of production produced and sold by households, labour, as well as the relative importance of other sources of household income, including interest and dividends; (ii) the proportion of household income going to pay direct and indirect taxes; (iii) the proportion of personal savings in personal disposable income; and (iv) the relative prices of durable goods and other goods, since these determine the amount of personal consumption expenditure (PCE) left for durable goods.

Such a macroeconomic framework is essential to understand the adverse conditions facing the HED industry. Using it, one can see that the net effect of declining real labour remuneration, high rates of taxation, and declining business incomes would be to squeeze personal disposable incomes (PDI). This is in fact what has happened since the early 1980s. And falling PDI has meant that in order to maintain their accustomed levels of private consumption expenditure (PCE), South African households have had to decrease their real savings and rely increasingly on credit. But as many such households have learnt to their cost, this is an approach which can only be taken so far: the drop in their 'PCE' is permanent, and increasing credit purchases only makes subsequent income vulnerable to interest rate hikes. For many, the most obvious problem is that high rates of inflation for non-durable goods (such as food and petrol) have meant that less and less PCE has been available to buy durable goods. Indeed, as will be argued below, this macroeconomic dilemma is probably the single most important *short-term* problem faced by the HED industry.

b) HEDs as Household 'Capital Goods'

Whereas the macroeconomic perspective outlined above can help to explain the forces influencing the income available to households to purchase HEDs, a microeconomic perspective is needed to understand why households demand such goods at all.

Unlike other goods consumed by households, such as food or clothing, some durable goods are purchased because they reduce the amount of time required to 'produce' the labour which is a household's principal product. For example, microwave ovens or washing machines help to save both time and energy, thus releasing more labour for earning an income outside the household. Moreover, because such goods are durable, they provide such services over time, saving a little time and energy every day. In this respect, the consumption of durable goods by households is analogous to the consumption of machinery and equipment by firms, which are purchased to help save labour in the production of commodities, again over time.

The purchase of such durable goods can therefore be seen as 'investment' by households, and as subject to influences analogous to those faced by firms. Both household durables and capital goods are purchased in order to provide a stream of services over time. These

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deduct expenditure on services from PCE, we are left with private expenditure on goods. This can be divided into expenditure on durable goods (such as cars, stoves, and TVs), semi-durable goods (such as clothing and footwear), and non-durable goods (such as food or cleaning materials).

services consist in the facilitation of other processes: in the case of the firm, the production of commodities; in the case of the household, the 'production' of labour.

In both cases, the demand for durables/capital goods is to a large extent derived from the existing and projected demand for the goods or services they are used to produce. Just as a capitalist would not buy a machine if s/he did not foresee enough future demand for the product to cover interest, depreciation, and profit, so a household would not purchase a labour-saving HED if the labour time and energy saved were not expected to earn a sufficient return. Otherwise it would be more rational to continue using labour to perform the tasks in question.

From this follow several corollaries.

- *Firstly*, just as deficient demand for final product contributes to a decline in fixed investment by firms, so too should a decline in the demand for labour — and a relative decline in the real value of labour remuneration — contribute to a falling demand for durable goods by consumers.
- *Secondly*, in most cases labour-saving durable goods, like capital goods,[2] are interchangeable with labour. As firms tend to do with respect to capital equipment, households can substitute labour for domestic appliances such as washing machines or floor polishers. Where household labour is inexpensive, as in South Africa, we would expect the demand for labour-saving durables to be restricted. Conversely, a rise in the cost of household labour — say by minimum-wage legislation for domestic workers — might lead to an increase in demand for these types of durable goods.
- *Thirdly*, as the absolute level of real income ('living standards') rises, we should expect expenditure on durable goods to rise as a proportion of private expenditure on goods. This is because demand for non- and semi-durable goods is relatively income-inelastic — once households can afford enough of the kinds of clothes and food they want, further increases in income do not lead to increased purchases of these goods. Instead (as firms do when the rate of profit rises beyond a certain level) a rising proportion of income is 'invested' by households in durable goods such as automobiles, domestic appliances, entertainment goods, and so on. Although there is also a limit to the demand for specific durable goods, the *variety* of goods available — particularly entertainment goods — means that households can easily continue to 'invest' in durable goods as real incomes rise.
- *Fourthly*, given the importance of hire-purchase arrangements in South Africa, high interest rates and credit restrictions can be expected to influence consumer demand, just as higher interest rates depress the demand for capital goods by firms. This is because in both cases higher interest costs raise the required rate of return associated with economical employment of the capital/durable good.
- *Fifthly*, as firms do with respect to capital equipment, households can be expected to weigh up the costs and benefits of purchasing durable goods, particularly those which are labour-saving, against the option of postponing those purchases. In particular,

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[2] Labour saving durables are even more perfectly substitutable.

when there is significant uncertainty about the future demand for or price of labour, or when interest rates, taxes, or prices are expected to change, households can be expected to put off purchases of durable goods — at least until such time as their existing appliances are no longer serviceable.

- *Finally*, when there is uncertainty about the general political climate, we can expect households to increase the proportion of their PDI going to savings, as firms tend to do with profits in such circumstances. This reduces the amount of PDI remaining for purchases of durable goods.

The point of this analogy is to understand that demand for some household durables is subject to a set of influences which is distinctly different from other types of consumer goods. This allows us to place the development of the HED industry within the context of key economic and political trends. In particular, it helps to understand that the difficulties facing the South African HED industry parallell those facing South African manufacturing more broadly: economic depression and political uncertainty discourage investment, whether by firms or households. As we shall see, however, amore fundamental problem is that a majority of the South African population does not live at an income level sufficient to allow such 'investment' even under more favourable conditions.

B. HEDs in South Africa: A Macroeconomic Perspective[3]

The recent history of the South African market for durable goods is literally one of boom to bust. Sales of consumer durables have risen and fallen sharply over the last decade (BMR, 1992: 16). This section will look at the broader macroeconomic conditions which have shaped the final market for consumer durables during the late 1970s, 1980s and early 90s.

1. Market Size and Shares

The HED market in 1991/92 is summarised in Table B-1. The market is evenly divided between domestic appliances and consumer electronics products. White goods are the predominant product overall. The consumer electronics market is evenly divided between audio and video products.

[3] Based on SARB, 1981-1992; SARB 1992; and annual reports from Rusfurn, Morkels, Tedelex, and Picapli.

Table B-1: HED Market Breakdown: 1992

Item	*Retail Value*	*Wholesale Value*	*Local Production*	*Local Production Share*
White Goods	R1,6bn	R1,21bn[4]	R850m[5]	(53%)
Small Apps	R338,7m	R256m[6]	R117m[7]	(34,5%)
Total Domestic Appliances	**R1,93bn**	**R1,47bn**	**R967m**	**(50%)**
Audio	R850m[8]	R446m	R174m	(20%)
Video	R951m[9]	R609m	R447m	(47%)[10]
Total Consumer Electronics[11]	**R1,8bn**	**R1,05bn**	**R621m**	**(34,5%)**
Total	**R3,73bn**	**R2,53bn**	**R1,59bn**	**(42,6%)**
VAT Paid	R370m			
VAT Incl.	R4,1bn			

2. Size in the Context of the Broader Economy

In 1990 (a peak year), the South African retail market for non-motor durable goods (*including* furniture) stood at approximately R11bn (*Business Day*, July 9, 1991).[12] This was 20% of total household consumption expenditure on manufactures for that year, and an estimated 70% of consumer spending on durables.[13] At approximately R3,45bn, the market for domestic appliances and consumer electronics was 31% of the total for non-motor durables, and 6,5% of private consumption expenditure on manufactured goods. The market for HEDs is thus an important force in consumer spending. It is also a key economic indicator, traditionally used to monitor the health of the economy.

In 1991, private expenditure *on goods* in South Africa was R134 391m, or 45,3% of GDP.[14] Private expenditure *on durable goods* was 9,4% of private expenditure on goods — R12

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4 This and previous figure based on data supplied by TEK Corp.

5 Calculated by subtracting the FOB value of white goods imports (from Customs & Excise) plus 30% average duty from the value of wholesale sales.

6 Approximate.

7 Estimated.

8 TEK Corp. estimate.

9 Estimate based on figures supplied by the Retailer Liaison Committee.

10 Much higher if video recorders and cameras are excluded.

11 Consumer electronics figures are from BMI 1992 Electronics Report and must be regarded as approximate.

12 This figure includes furniture.

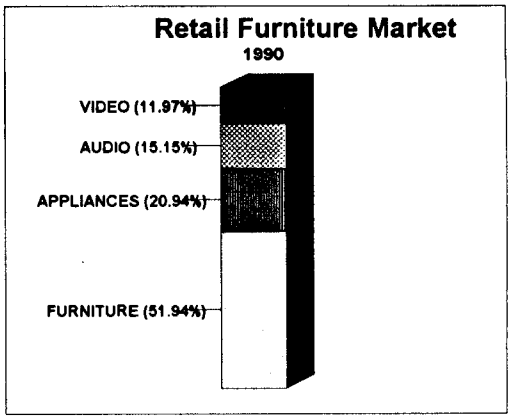
13 I.e., including automobiles and non-mechanical or electrical furnishings.

14 At market prices.

095m, or just over 4% of GDP. Private expenditure *on furniture and household appliances*, at R5 503m, was 4,1% of private expenditure on goods, 45,5% of private expenditure on durable goods[15], and 1,7% of GDP. Private expenditure on HEDs, at R3,73m, was thus 2,8% of private expenditure on goods, 30,8% of private expenditure on durable goods, and 1,3% of GDP.

The proportion of durable goods in private expenditure on goods has declined from over 13% in the early 1980s to 9,4% at present (see Figure B-3). This has been due to a declining level of real consumer income. As we shall see below, consumer demand for HEDs has recently declined very steeply.

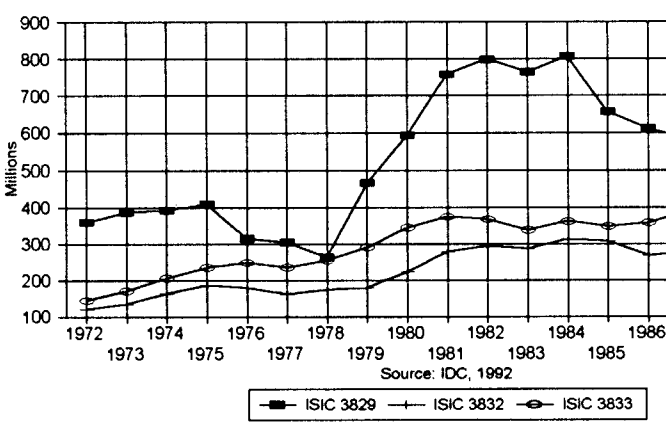
Figure B-1



3. Overall Trends 1970-1990

As we have seen, demand trends for HEDs in South Africa are closely linked to broader macroeconomic patterns. As Figure B-2 indicates, private consumption expenditure (PCE) on International Standard Industrial Classification levels 3829, 3832, and 3833 — which include the goods with which this study is concerned — has increased over the last 20 years, both absolutely and as a share of PCE on manufactures (Figure B-3). This increase,

Figure B-2



[15] Which also includes personal transport equipment, boats, and similar items.

however, was massively concentrated in the 1978-82 period, and within ISIC 3929, which includes white goods. Subsequently PCE has fallen from its 1982-84 peak, most dramatically in the 1984-86 period, again due largely to falling PCE on ISIC 3829. PCE for ISIC 3832 and 3833, on the other hand, has risen more steadily, reflecting the rapid introduction of lower-cost consumer electronics and small appliances.

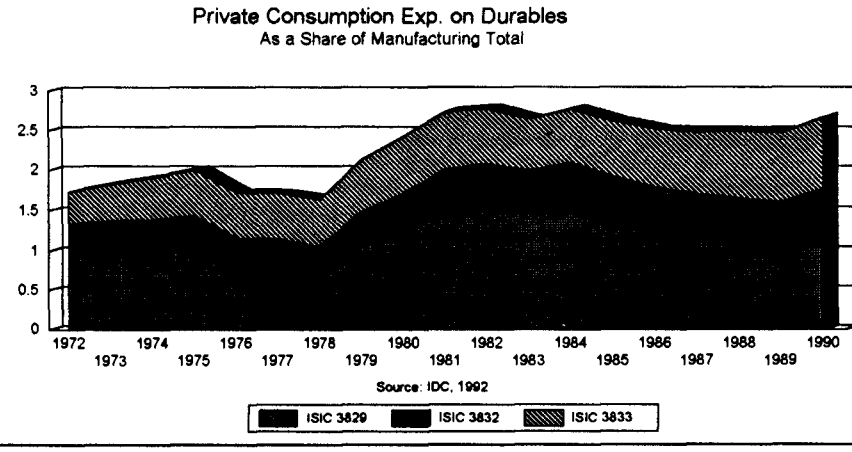
The *share* of the durables sectors in total PCE on manufactures has risen by nearly 50% over the last two decades (Figure B-3). After rising during the 1978-84 period, the share of ISIC 3829 fell, and is now little higher than its 1972 level of just over 1% of total PCE.

Thus the overall increase in the durables share of total PCE over the 1980s can be attributed to increasing relative expenditure on ISIC 3832 (including consumer electronics) and ISIC 3833 (small appliances). As we have seen, this was due to a general shift over the period towards increased consumer electronics and small appliance purchases, reflecting the introduction of television to South Africa and the emergence of new, low-cost consumer electronics and products and small appliances.

4. Durable Goods in the Economy, 1976-1992

After falling from over R2bn to less than R1,5bn[16] during 1976, PCE on durable goods remained stable until the second quarter of 1978, when it rose sharply (see Figure B-2). The following quarter saw an even sharper decline in PCE, however, and the levels of March 1978 were not reached again until late 1979. By that time PCE on durable goods had entered a significant upswing, which was to remain uninterrupted until late 1980, when PCE topped R2,5bn. That the underlying demand for durable goods remained strong, however, was shown by the fact that the late-1980 slowdown was due primarily to shortages of

Figure B-3

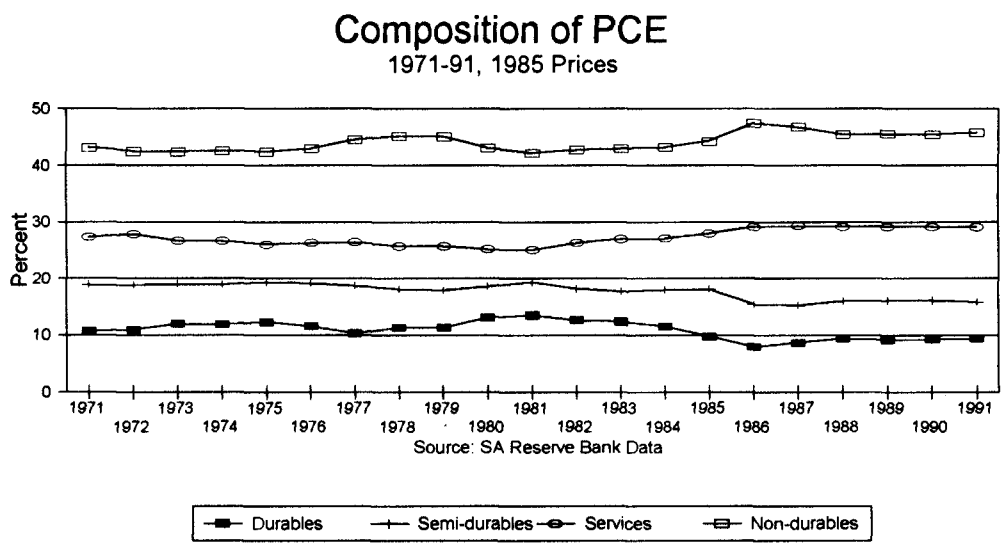


[16] Constant 1975 prices.

durable goods and new restrictions on consumer credit.

The steep rise in PCE on durable goods from 1977-80 was based primarily on rising real incomes during the period, but also on an expansion of credit purchases. In 1981, however, a decline in PDI began, as a result of increased real rates of taxation, inflation, and employment stagnation. This led in turn to a decrease in PCE on durable goods, which

Figure B-4



declined steadily until the second quarter of 1982, when it again began to rise.

a) The 'Mini-Boom'

The second quarter of 1983 saw a sharp upturn in the South African economy — the 'mini-boom'. PCE on durable goods rose rapidly, reaching an annualised rate of increase of 12% by the second quarter of 1984. Overall, the increase in PCE on durables was 7% during the upturn.

This burst of consumption was partly due to the vigorous nature of the upswing, but was also to be explained by a number of underlying changes in consumer behaviour. Taken together these suggest the underlying weakness of the economy in the early 1980s: an attempt by households to maintain living standards in the face of a long-term decline in their economic position.[17]

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[17] Firstly, *per capita* disposable income declined by over 3% during 1983-84, but *per capita* PCE increased by 4,5%. This implied a significant a decline in personal savings and/or expansion of credit purchases. A credit expansion had in fact begun during the 1981-83 downturn; overall, outstanding consumer credit grew at an annual average of 33,5% between 1979-1984. Secondly, inflationary

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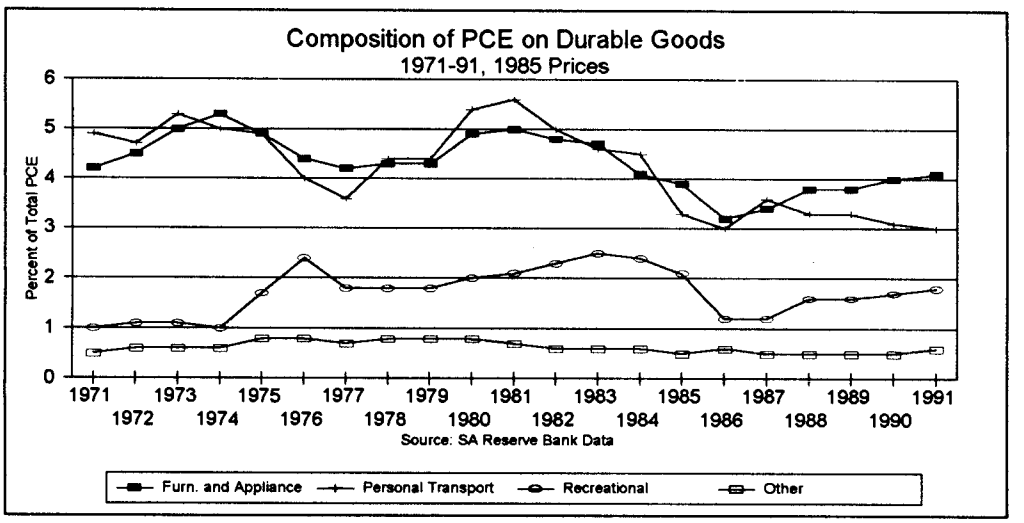
Overall, the 1983-4 consumer boom was driven not by rising real incomes, but by dissaving, credit, and inflationary expectations. Such a process could not be sustained, as such expectations became self-fulfilling and overheated the economy. As is well-known, the mini-boom came to an abrupt end in mid-1984, as 'monetarist' policies were implemented to curb inflation and correct external imbalances. These included punitive increases in HP deposits and rates. Widespread popular resistance to the state had also emerged by this time, accompanied by a variety of economic repercussions, including a massive depreciation of the Rand and a drop in consumer confidence.

As a result, PCE abruptly fell by an annualised rate of over 20% in the third quarter of 1984. The fall continued to mid-1985, resulting in a 7% overall decline in PCE for the year. For its part, PCE on durable goods fell extraordinarily steeply: by 16,5% from the second quarter of 1984 to the same period in 1985. This decline was only partly to be explained by the end of the mini-boom, however. Undoubtedly, the abovementioned factors served as a catalyst, but more fundamentally, credit-driven consumer demand had run out of steam.

Figure B-5



Inflation, 'bracket creep', and rising real interest rates bit hard into real disposable incomes, whilst controls over HP terms were at overkill levels.

Households' credit-led defense against their declining living standards could therefore no longer continue. By 1986 it was clear that the rate of growth of real PCE had been in long-term slowdown. Overall, between 1973 and 1981 PCE had increased at an annual average rate of 4%. Between 1981 and 1986, however, PCE grew at an average of only 1% p.a.

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expectations encouraged consumers to increase their expenditures on durable goods more than proportionately during the upswing of 1983-4. Also significant in this respect was the impending increase in GST from 7% to 10% on 1 July 1984. Finally, negative real interest rates discouraged bank savings; the ratio of personal savings to disposable income declined from 12% in 1979 to 2,5% in 1984.

b) Recovery, 1986-1989

From early 1985 to 1986, PCE rose only 1,5%. Growing uncertainly at the political climate, however, resulted in a sharp decline in PCE on *durable* goods into the first half of 1985. This trend was reversed from mid-1985, however, resulting in an 8% overall rise in PCE on durable goods from mid-1985 to mid-1986. This turnaround was partly to be explained by inflation-induced expectations of price increases in early 1986, but also by a continued decline in the real rate of interest and an overall firming of the economy.

The slight recovery of 1985-86 strengthened into 1987. Real incomes rose slightly, and PCE saw an increase of 4% between early 1986 and early 1987. As in earlier periods, however, this rate of increase was greater than that of PDI. Unlike the pre-1984 period, however, this disjuncture was not due to increased credit spending, since the ratio of outstanding consumer credit to PDI continued to fall, from 32,5% to 25% 1985-1987. Instead, consumers dug more deeply into bank savings: the personal savings ratio declined from 2,5% to 1,5%. This can be explained as a tendency to 'monetise' assets in the face of rampant inflation and a declining real interest rate. As might be expected in circumstances of dissaving for this purpose, PCE on *durable* goods increased more rapidly than other forms of consumer expenditure during 1986-87.

The tendency for PCE to rise more rapidly than PDI continued into 1988. There was also a marked return to debt financing of durable purchases, as real interest rates continued to fall. Taken together, these factors resulted in a 14% rise in PCE on durable goods from the third quarter of 1986 to the second quarter of 1988. Particularly strong consumer demand growth of 30% (annualised) was experienced between October 1987 and April 1988, and some durables suppliers were unable to keep up with demand for certain items. These rates of growth were comparable to the increase recorded during the 1983-84 'mini-boom'. The 1987-88 increase was from a much lower base, however: by mid-1988 PCE on durable goods was still 27% lower than it had been at the end of the 1984.

Nevertheless, this growth in PCE was regarded by government as unsustainable, since real PDI had not risen commensurately. On 4 May 1988 the government announced a package of measures to reduce consumer demand, including an increase in the minimum deposit for HP purchases from 10% to 12%. Additional HP restrictions were introduced on 12 August 1988, and were regarded by the retail furniture industry as punitive. Import surcharges on most appliances were imposed. The GST debtor's allowance[18] was repealed, which forced retailers to pay GST on credit sales immediately instead of over the period of the contract. These measures were joined by more on 5 May 1989. Taken together, they succeeded in restraining credit growth significantly.

c) The Situation in 1989

By mid-1989, the South African economy had experienced more than 12 quarters of growth. PDI had increased for the first time since the end of the 1983-84 mini-boom. Real interest

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[18] Which allowed retailers to defer payment of 50% of GST until the completion of a credit contract.

rates were in decline. These factors had contributed to a slow increase in expenditure on durable goods, particularly household appliances, audio products, and televisions.

Nevertheless, overall PCE was only 3,5% higher in mid-1989 than it had been in mid-1984, reflecting the severity of the 1984-85 fall. The level of PCE on *durable* goods was still 26% lower than in the second quarter of 1984. Indeed, in mid-1989 PCE on durable goods was at 1976 levels. This long-term decline in spending on durable goods was having a major impact: the real value of the stock of such goods had fallen by an annual average of 4,5% from 1984-89, and stood at approximately its 1980 level.

This implied not only a secular decline in consumer spendung, but a declining standard of living. In spite of this, in 1989 the government and Reserve Bank, under severe pressure to achieve equilibrium in the balance of payments, launched an attempt to curb inflation and to achieve a positive real interest rate. To that end the Bank rate was increased to 18% and prime overdraft to 21% in October 1989. This, coupled with a cyclical downturn from March of that year, slowed growth of PCE to an annualised 1% by the third quarter of 1989. PCE on durable goods declined at an annual average rate of 6% during the period. This rate was smaller than might have been expected , far less than the 28,5% decline in the downturn of 1984-86.

PCE continued to rise slightly, at an annualised rate of 2% for 1990. PCE on durable goods dropped sharply after F.W. de Klerk's February 1990 speech unbanning the ANC, SACP, and PAC, but unexpectedly rose sharply, brining PCE on durable goods — in particular furniture and household appliances — back to the previous peak levels of late 1988.

d) The 1990 HP Spree

This sudden increase in PCE on durable goods was in response to the lifting, on 12 March 1990, of restrictions on HP credit for sales of HEDs.[19] This standardised terms for all HP transactions except sales of VCRs. This unleashed a significant replacement demand, built up during the restrictive period of 1988-89. HED sales rose considerably -- by an estimated 20-30% per month (*Business Day*, March 15, 1991). In real terms audio equipment sales grew 36% year-on-year; appliance sales by 16%; and TV and video sales by 8%. From early 1988 to late 1990 the share of durables in overall furniture sales had increased by 24% — from 55% to 68% (CSS *Quarterly Bulletin of Statistics*, various).

Growth in current terms slowed to about 18% in the latter half of 1990 and into 1991, however, producing negative growth in some products, particularly televisions. This was due partly to economic downturn, but also to exhaustion of consumer credit and satiation of pent-up demand. Sales of some product lines, however, particularly in audio equipment, continued to grow at or above the inflation rate, albeit at reduced retail margins (*Business Day*, March 15, 1991, June 14, 1991; *Star*, June 18, 1991, *Business Day*, 26 October 1991). HED sales growth turned strongly negative in 1991, as we shall see below.

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[19] Industry sources speculate that this was politically motivated, in order to boost confidence in the white community following de Klerk's February speech.

5. Assessment

In real terms (1985 prices) the market for HEDs grew 19,5% from 1986 to 90, at an average annual rate of 3,%. This growth was concentrated in 1986-89 and the first half of 1990. Although the HED market followed the general fluctuations of the economy, it tended to cycle out of phase with the broader economy as consumers used credit and dissavings to maintain consumption levels into recessionary conditions. By the early 1990s, this process had reached a dead end and the HED market began to experience a decline which was relatively more severe than that of the economy as a whole. HED sales experienced a -19,5% drop in 1991 and a -11,7% drop in 1992.

Within this trend, certain areas experienced relatively stronger growth. It is essential to distinguish which products were experiencing this growth, and why, as future growth patterns may thereby be illuminated.

a) Sales by Type of Product

Growth during 1986-92 was strongest in sales of video products, at 60% 1986-90, for an annual average of 10,2%. This was largely explained by a massive increase in television sales in 1988, as lower-cost monochrome units flooded a market rebounding from a deep recession. Next was audio equipment, which grew overall at 9%, for an annual average of 1,85%. Slowest growth was in was domestic appliances, at 8,%, for an annual average of 1,7%.[20]

Striking is the rate of growth of video product sales. The *share* of such products in the overall furniture market grew from 8% in 1985/6 to 11,5% in 1990. Particularly important here was the role of M-Net and TV hire companies, spurring sales of M-Net decoders.[21] The share of audio equipment also grew to 11,6% of the furniture market over the latter half of the 80s.

Most recent growth has thus been in consumer electronics; white goods sales have held steady at 17-20% of the market after peaking in 1988 (*Business Day*, 9 July, 1991; 'White Goods, Black Market', *Financial Mail*, September 9, 1991).

Why has sales growth been concentrated in consumer electronics products, as opposed to white goods? Several factors help to explain this trend:

- New audio/video products without substitutes, particularly high-tech products such as camcorders, compact disc players, etc., tend to generate sales even in a flat market. White goods lack such an effect.
- Aggressive price competition amongst major retailers and grey market imports have kept prices of consumer electronics products down (interview sources). Overall price inflation for the consumer electronics branch (5% in 1990) has been significantly lower

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[20] From figures supplied by the Furniture Traders' Association.

[21] Now dominated entirely by Teljoy, which bought its only competitor, Empisal, from Tedelex (*Argus*, June 18, 1992).

than consumer prices more broadly.[22] This is also to be explained by lower inflation rates and falling production costs in countries from whom South Africa imports consumer electronics.

- The higher cost, greater durability, and greater sensitivity to HP variations of white goods means that purchases can be deferred much more readily during recessionary/uncertain periods.
- New black consumers have been a major force in recent market growth, and tend to purchase consumer electronics items — particularly televisions — before domestic appliances.

The importance of this imbalanced growth is that market growth has been strongest in those areas in which South Africa is strongly import-oriented (audio and video)[23] and weakest where we have effective local production capacity (white goods).

b) Sales by Destination

What about the growth markets during the late 1980s? It is widely acknowledged within the HED industry that the most important factor in the recent past has been increased real incomes and home ownership amongst a growing segment of the black population, centred around urban areas. For example, the Furniture Traders' Association (FTA) estimates that in the January 1989-90 sales year, sales to the black market accounted for 32,5% of growth in sales of TV and audio equipment. The same market segment contributed to 22% of growth in furniture sales more broadly (*The Star*, May 15, 1991). Significantly, in the generally weak period (for non-electrical furniture) from April 1990 to April 1991 sales of 'black' chains increased by over 18%, whilst sales at 'white' chains increased by only 2,3% (*Business Day*, June 14 1991). From July 1990 to July 1991 sales to blacks rose 25,8% compared to 13,6% for the remainder of the market (*Argus*, 24 October 1991).[24]

This indicates that a large proportion of sales during the late 80s has gone to the emerging black market. This is confirmed by marketing information presented in Table B-2 below (AMPS, 1992). This shows that in many cases black buyers are now the single biggest consumers of many HEDs. For example, in 1991 black consumers purchased 95 988

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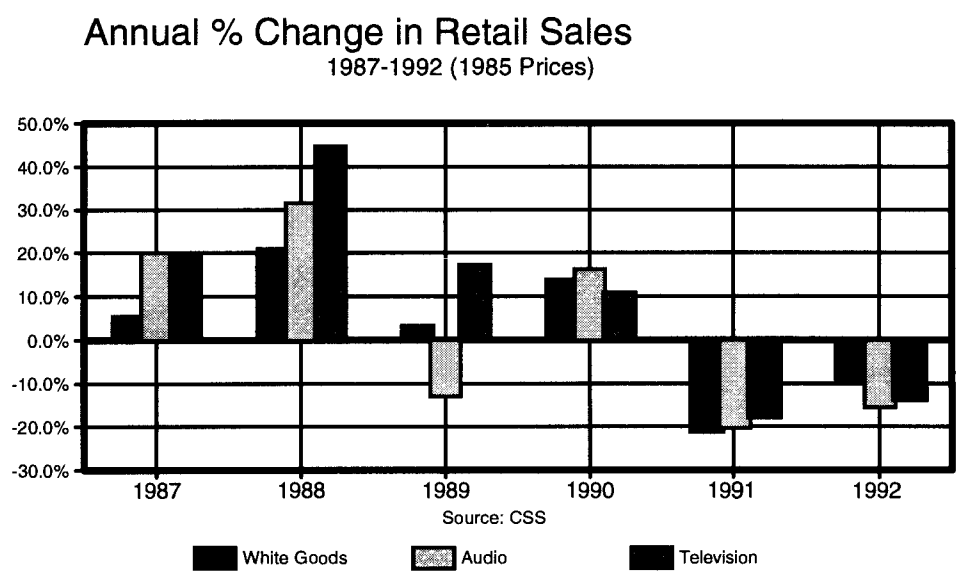
22 Based on information supplied by the retailer Liaison Committee.

23 Although South Africa supplies most of its television needs, such products have a very high import content, as we shall see.

24 One problem in assessing recent demand for HEDs is that there are one-off variables which may have influenced sales during the relatively good growth period of 1986-88 which will probably not be repeated. Electrification of black areas will no doubt continue to provide a significant source of market growth, as it did in this period. But there is reason to speculate that some growth in this portion of the market has been due to the availability of greater disposable income due to rent and utilities boycotts. The effect of such variables has not been calculated to my knowledge, but is likely to have been significant in some cases, particularly TV and audio. This implies that a move away from boycotts and/or a stricter attitude by municipalities and the government may lead to less growth than might be expected if the late 80s are taken as a guide (Mohammed, 1992).

Figure B-6



refrigerators, compared to only 64 155 for whites. Similarly, blacks bought 176 820 televisions (more than half the yearly total) compared to 95 420 for whites. And black households bought 212 184 hi-fi sets, compared to whites' purchases of only 80 605. In bigger-ticket, less basic items such as microwaves, deep freezes, VCRs, and washers, however, whites continue to make most purchases.

Clearly, black consumers are the market of the future. Nevertheless, it must again be stressed that growth in black purchases has been precisely in those areas in which South African HED manufacturers are weakest.[25]

6. The Current Situation

Although the South African economy had been in an official downswing for over 30 months by the end of 1991, demand for HEDs had remained reasonably good until that year, helped by the 1990 credit relaxation and by unusually high nominal wage increases. Yet spending power was coming under pressure from a number of factors. During 1991, average wage increases failed to keep up with CPI inflation of 15,6%, unemployment grew, profits shrank, small businesses failed in unprecedented numbers, personal income taxes rose, fuel prices rose, and VAT was introduced. Together these forces combined to reverse the upward trend of HED sales and send the market into a deep decline from which it had not recovered at the time of writing (early 1993).

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[25] The distribution of HEDs amongst South Africa's population is discussed in greater detail below.

Table B-2: Durable Articles Purchased In 1991

	Whites	1,6m	Blacks	5,05m	Asians	181,000	Clrds.	568,000	All	7,45m
Item	%	No.	%	No.	%	No.	%	No.	%	No.
Deep Freeze	2.1%	34,545	0.3%	15,156	3.1%	5,611	0.8%	4,544	0.8%	59,856
Electric Hotplate	0.5%	8,225	0.7%	35,364	0.5%	905	0.4%	2,272	0.6%	46,766
HiFi	4.9%	80,605	4.2%	212,184	3.9%	7,059	2.4%	13,632	4.2%	313,480
Microwave	4.2%	69,090	0.1%	5,052	4.0%	7,240	2.0%	11,360	1.2%	92,742
Refrigerator	3.9%	64,155	1.9%	95,988	4.4%	7,964	3.0%	17,040	2.5%	185,147
Stove — electric	2.2%	36,190	0.9%	45,468	3.1%	5,611	2.0%	11,360	1.3%	98,629
Stove — other	0.3%	4,935	0.7%	35,364	0.3%	543	0.5%	2,840	0.6%	43,682
TV	5.8%	95,410	3.5%	176,820	6.4%	11,584	4.8%	27,264	4.2%	311,078
VCR	4.3%	70,735	0.4%	20,208	4.7%	8,507	1.4%	7,952	1.4%	107,402
Vacuum	3.3%	54,285	0.2%	10,104	2.2%	3,982	1.8%	10,224	1.1%	78,595
Washer — auto — front	2.6%	42,770	0.1%	5,052	3.0%	5,430	0.5%	2,840	0.8%	56,092
Washer — auto — top	1.6%	26,320	0.2%	10,104	0.6%	1,086	1.0%	5,680	0.6%	43,190
Washer — twin tub	1.4%	23,030	0.0%	0	0.1%	181	1.4%	7,952	0.4%	31,163

(NOTE: Figures indicates percentage of households in each "population group" which bought each appliance during 1991, as well as the number of units sold.)

a) The Current Recession: Endgame?

By mid-1992, it had become clear that optimism that the downswing would soon end had been misplaced. By early 1993, the South African economy had suffered nearly 12 quarters of stagnant or declining GDP. Credit-led PCE growth up to early 1991 had been unmatched by corresponding domestic investment, as business waited out the political negotiations process. In response to rapidly falling consumer demand, there began a significant running down of inventories at retail level. These factors had eventually to catch up with consumer spending, as jobs disappeared, wages were outstripped by inflation, and precautionary savings grew. Added to this was a rising level of consumer debt, which increased from an average of 23% of disposable income in 1985-6 to almost 29% in 1990-91. Moreover, real interest rates remained positive, falling only recently in the face of moderated inflation.

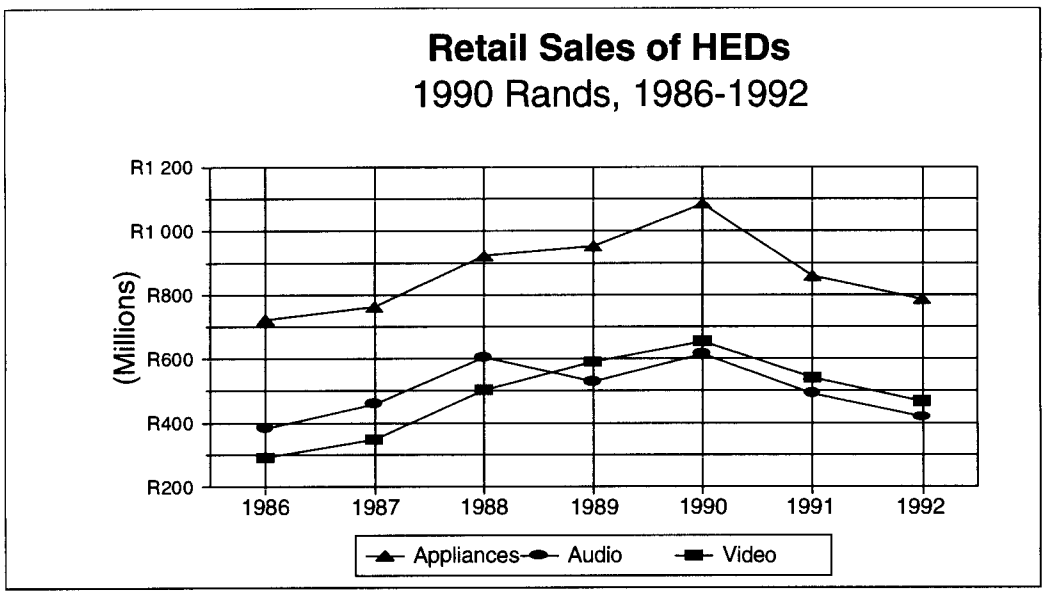
As a result of these factors, *per capita* PDI fell by 6% during 1991-92. PCE, too, declined at -2-3% annualised, and the rate of this decrease has been increasing. Significantly, these high rates of decrease in PCE have taken the form of declining sales of durable goods. PCE on durable goods fell at an annualised rate of 15% in the fourth quarter of 1991, 10,5% in the first quarter of 1992, and 8% in the second quarter. Sales of domestic appliances declined by 6%, whilst those of TVs declined by 9% over the course of 1991. Industry

estimates suggest that overall, sales of HEDs declined by 9% in fiscal 1992, and would continue to decline throughout 1993 (interview sources).

This situation has resulted in the worst market the HED industry has faced since World War Two. The situation was not expected to improve in the short term as of early 1993. On the positive side, since expenditure on consumer durables has declined in real terms over the course of the 1980s, and the real value of the consumer durables stock has declined considerably, postponed purchases were expected eventually to show up in the form of strong replacement demand. But the essential stagnation of PDI since 1985, coupled with continuing recession and political uncertainty, suggest that purchases would postponed yet further.

Finally, it should be borne in mind that the reasonable growth in sales of HEDs over the late 80s was achieved by increased debt and substantial dissaving by households. Any likely

Figure B-7



growth in PCE will again probably be financed from credit rather than growing PDI. This situation has never been and is not a sustainable basis for growth for the HED industry, and has always resulted in government intervention to tighten credit conditions. Effectively a sound basis for growth will only be achieved when rising PCE is financed by rising PDI. Such a situation does not appear to be in the offing.

The danger is that the present conjuncture may result in a deterioration of domestic capacity to supply HEDs as firms move out of manufacture. Any upsurge in pent-up demand would then put intolerable pressure on the balance of payments. This could result in government-imposed credit and import controls, once again strangling growth in the market. For this reason, it will be argued below that *policy towards the HED industry must begin with appropriate measures to stimulate consumer demand.* Otherwise any attempt to restructure

the HED manufacturing industry and/or to liberalise imports is bound to end in disaster, for the industry and the economy.

C. Distribution of HEDs in South Africa

This section looks at current levels of HED ownership in South Africa, particularly amongst those who constitute the major growth market for HED manufacturers: urban black households.

1. Size and Growth of the Stock of HEDs

A recent estimate of the stock of HEDs (AMPS, 1992) is presented in Table C-1 below. It shows that for 7,4m South African households surveyed[26] in 1991 there were at least[27] 2,8m electric stoves (which were thus owned by 37,7% of South African households); 1,9m coal, wood, or gas stoves (26%); 1m microwaves (14,3%); 3,2m fridges (42,6%); 1,3m deep freezers (18,1%); 1,9m washing machines (25,1%); 4,1m televisions (55,4%); 1,1m VCRs (14,9%); and 2,8m hi-fi sets (37,7%). 6,4m or 86,4% of South African households own a radio.[28]

This stock is being increased at a varying rate. Table B-2 above shows that growth has been strongest where black consumers have been the most active force in the retail market: consumer electronics. Slow growth was recorded in the stock of more expensive but more durable white goods: 59 856 deep freezes were sold in 1991, increasing the national stock[29] by only 3%; 130 445 washers were sold (a 4,8% increase); 185 147 refrigerators (4%); and 98 629 electric freestanding stoves (2,7%). Conversely, rapid growth was experienced in the stock of consumer electronics products: 313 480 hi-fi sets (7,8%); 107 402 VCRs (7,7%); 311 078 televisions (6%); and 92 742 microwaves (6%).

In most cases (not stoves) this is above the rate of population growth, suggesting the penetration of appliances into existing households, through electrification and income growth in some sectors. Yet there is room for major growth in HED sales and ownership. In more developed economies households spend an average of 10% to 13% of their disposable income on non-motor durables. The comparable figure for South Africa is only 4% to 5% (BMI, 1991). The reason for the discrepancy is simple: the absolute level of disposable incomes is lower in South Africa, particularly amongst the black population.

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[26] Surveys are conducted regularly by All-Media Product Survey and Sociomonitor. The former covers both urban and rural households, whilst the latter focuses on urban households. Surveys are conducted by means of questionnaires administered to a cross-section of households.

[27] This data probably significantly underestimates the stock of certain goods, such as refrigerators, TVs, and Hi-fi sets, since many households own more than one unit.

[28] Implying that investment in media resources should go into SABC radio services, at least in the short-term.

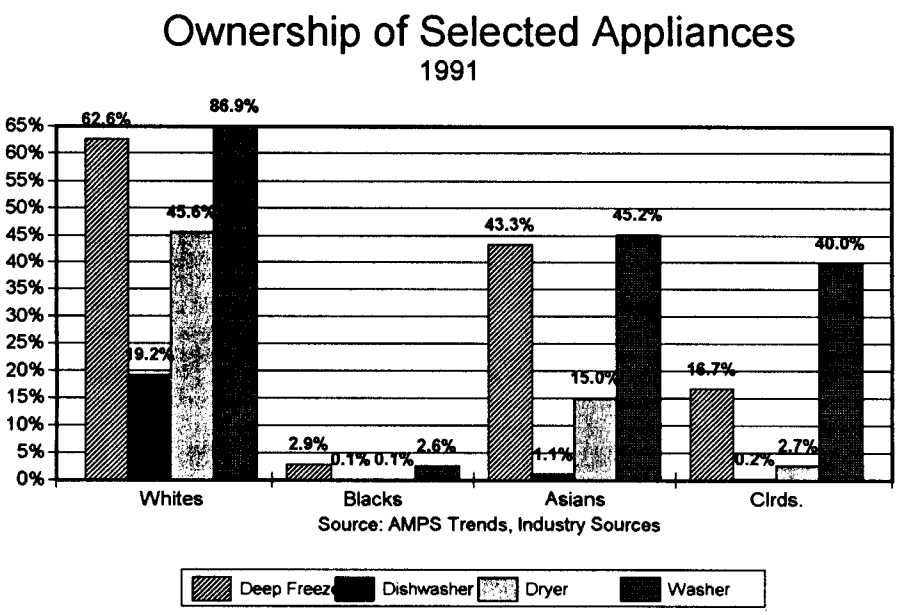
[29] Assuming 30% of purchases are for replacement purposes.

This has resulted in a highly skewed distribution of HEDs amongst the South African population, to which we will now turn.

2. Distribution of HEDs

Almost all white South African households own a television, radio, refrigerator, electric stove, and washing machine. They also own tumble dryers, hi-fi sets, microwave ovens, video cassette recorders, and vacuum cleaners in large proportions. Asian households are slightly behind this except in laundry and some cooking products. Penetration of 'coloured' South African households by such products is generally 20-30% lower.

Figure C-1



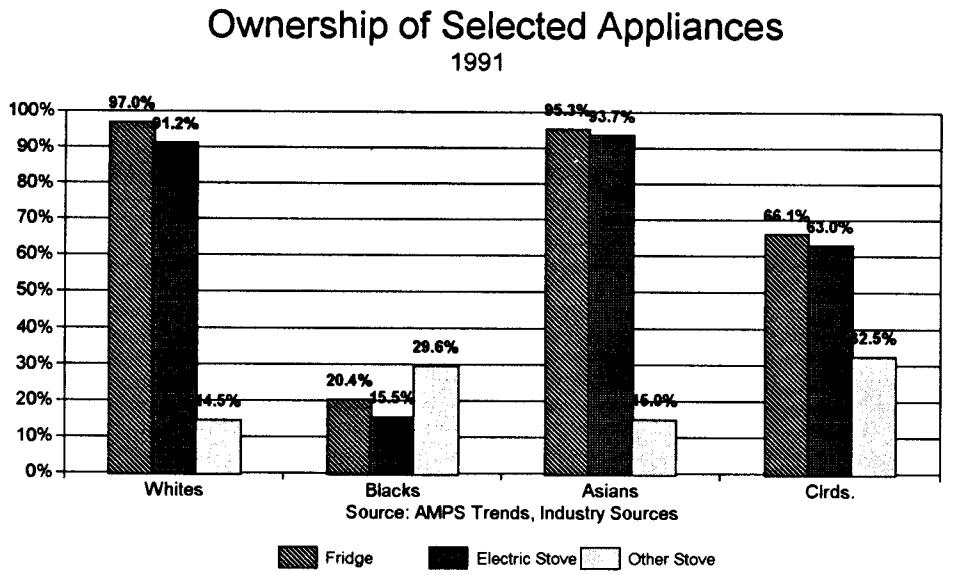
Although black *households* make up approximately 67,8% of the national total,[30] they possess only 27,8% of the national stock of electric stoves, 32% of refrigerators, 7% of washing machines, 4,7% of microwaves, and 0,6% of tumble dryers. Blacks fare better in consumer electronics: they own 65% of radios, 40% of televisions, and 49% of hi-fi sets (but only 10% of VCRs and a negligible percentage of M-Net decoders).

Qualitatively, too, the distribution of appliances is significantly unequal. The majority of black households own appliances which are roughly twice as old as those owned by white,

[30] Please note that the figure refers to households, not to persons.

'coloured' and Indian households. Nearly 40% of electric stoves and fridges owned by blacks are over 10 years old; 25-30% of televisions and audio products are of this age.[31]

Figure C-2



Nor is the situation improving: although it is recognised in the HED industry that the urban[32] black market is its only real growth area, the proportion of such households able to afford appliances is declining. Many black urban households own no small electrical appliances at all.[33] The percentage of such households actually rose from 55% to 62% between 1989 and 1991. Let us now look more closely urban black household ownership of four basic types of product.

Table C-1 below lists the percentage and number of households within each population group owning each of 19 key appliances in 1991. The inequality of the distribution of these appliances is striking. Although 91% of white households and 94% of Asian households own an electric stove, 63% of 'coloured' and only 15,5% of black households own one. Almost 30% of black households use a solid-fuel stove. Overall, 37,7% of South African households own an electric stove, whilst 26% continue to use a solid-fuel stove. These figures are very different for urban black households, however, as the following sections will discuss.

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31 Drawn from confidential market reports.

32 Approximately 42% of black households nationwide.

33 Obviously excluding consumer electronics.

Figure C-3

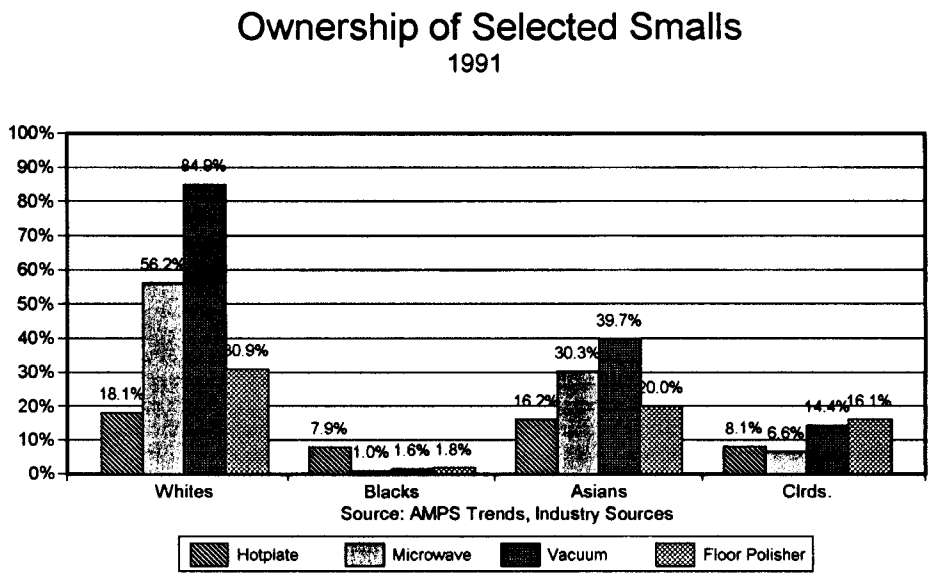
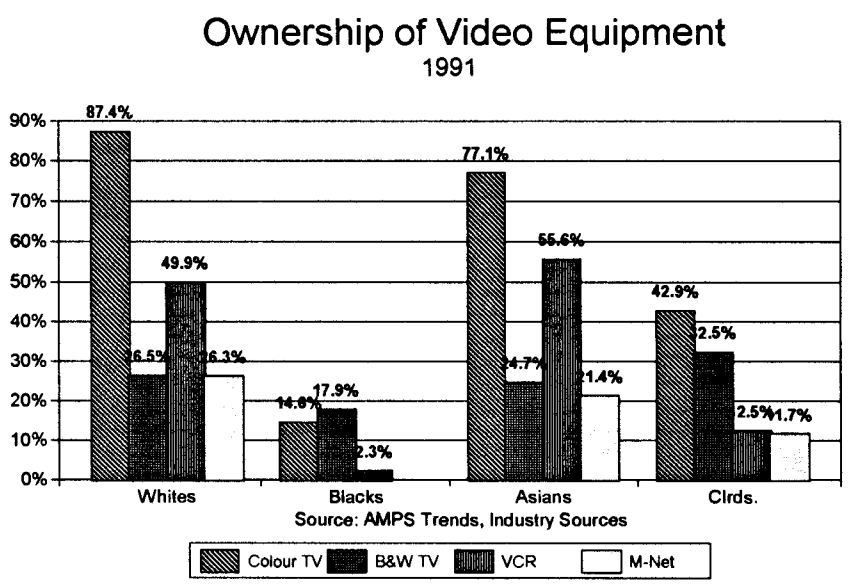


Figure C-4



a) Cooking Appliances

This section will go into relatively great detail because of the importance of electrical cooking appliances — particularly electrical freestanding stoves — as a source of electricity consumption. As will be discussed in later chapters, consumption of electricity is vital for economic rates of return on ESKOM investments in electrification of new areas.

Table C-1: DURABLE ITEMS OWNED IN 1991, BY POPULATION GROUP

	Whites	1,645,000	Blacks	5,052,00	Asians	181,000	Clrds.	568,000	All	
	%	No.	%	No.	%	No.	%	No.	%	No.
Deep Freeze	62.6%	1,029,770	2.9%	146,508	43.3%	78,373	16.7%	94,856	18.1%	1,349,507
Dishwasher	19.2%	315,840	0.1%	5,052	1.1%	1,991	0.2%	1,136	4.4%	324,019
Dryer	45.6%	750,120	0.1%	5,052	15.0%	27,150	2.7%	15,336	10.7%	797,658
Electric Hotplate	18.1%	297,745	7.9%	399,108	16.2%	29,322	8.1%	46,008	10.4%	772,183
Floor Polisher	30.9%	508,305	1.8%	90,936	20.0%	36,200	16.1%	91,448	9.8%	726,889
HiFi	68.2%	1,121,890	27.1%	1,369,09	56.9%	102,989	37.0%	210,160	37.7%	2,804,131
M-Net	26.3%	432,635	--	0	21.4%	38,734	11.7%	66,456	7.2%	537,825
Microwave	56.2%	924,490	1.0%	50,520	30.3%	54,843	6.6%	37,488	14.3%	1,067,341
Radio	97.8%	1,608,810	82.6%	4,172,95	93.8%	169,778	84.6%	480,528	86.4%	6,432,068
Refrigerator	97.0%	1,595,650	20.4%	1,030,60	95.3%	172,493	66.1%	375,448	42.6%	3,174,199
Stove — electric	91.2%	1,500,240	15.5%	783,060	93.7%	169,597	63.0%	357,840	37.7%	2,810,737
Stove — other	14.5%	238,525	29.6%	1,495,39	15.0%	27,150	32.5%	184,600	26.1%	1,945,667
TV — B&W	26.5%	435,925	17.9%	904,308	24.7%	44,707	32.5%	184,600	21.1%	1,569,540
TV — colour	87.4%	1,437,730	14.6%	737,592	77.1%	139,551	42.9%	243,672	34.4%	2,558,545
All TV	113.9%	1,873,655	32.5%	1,641,90	101.8%	184,258	75.4%	428,272	55.4%	4,128,085
VCR	49.9%	820,855	2.3%	116,196	55.6%	100,636	12.5%	71,000	14.9%	1,108,687
Vacuum	84.9%	1,396,605	1.6%	80,832	39.7%	71,857	14.4%	81,792	21.9%	1,631,086
Washer — auto — front	38.3%	630,035	0.8%	40,416	33.2%	60,092	5.8%	32,944	10.3%	763,487
Washer — auto — top	19.5%	320,775	1.5%	75,780	5.5%	9,955	8.6%	48,848	6.1%	455,358
Washer — twin tub	29.1%	478,695	0.3%	15,156	6.5%	11,765	25.6%	145,408	8.7%	651,024
All Washers	86.9%	1,429,505	2.6%	131,352	45.2%	81,812	40.0%	227,200	25.1%	1,869,869

(Source: All-Media Product Survey Trends, 1986-1991; confidential sources. The figure in the first column represents the percentage of households owning that item. The second figure represents the number of houscholds.)

(1) Type of Cooking Appliance Owned

69% of urban black households owned a cooking appliance — either a freestanding gas, electric or solid-fuel stove or a gas or electrical hotplate — in 1991. The percentage of such households owning freestanding stoves (of any kind), however, dropped from 66% to 57% from 1989 to 1991.

Although 60 540 solid-fuel stoves were discarded by urban black households between 1989 and 1991 (see Table C-2), such stoves remain the main type of appliance owned by such households. In 1989, 42% of urban black households had solid-fuel stoves compared to 29% owning electric freestanding (EFS) stoves. By 1990 this gap had closed to 32% and 26%, respectively. Note that the percentage of urban black households owning EFS stoves thus *dropped* from 29% to 26% 1989-1991. Although a greater number of EFS stoves were owned in 1991 (542 880 compared to 503 150 in 1989), the penetration of this appliance had not kept up with urban population growth. There are three reasons for this.

Table C-2: Urban Black Household Ownership of Stoves, 1989-1991

		1989		1991
Households 000's		1,735		2,088
Adult Population 000's		5,567		6,993
	%	Units	%	Units
Total Stoves	69%	1,197,150	59%	1,231,920
Total Freestanding Stoves	66%	1,145,100	57%	1,190,160
Electric f/s	29%	503,150	26%	542,880
Solid-fuel f/s	42%	728,700	32%	668,160
Total Built-in Stoves	3%	52,050	3%	62,640
Electric built-in oven	2%	34,700	2%	41,760
Electric built-in hob	1%	17,350	1%	20,880
Total Electric Hotplates	18%	312,300	20%	417,600

Source: Confidential industry report.

- Firstly, 39 730 EFS stoves were sold to urban black households 1989-1991 — a 7,8% increase, about 3,9% p.a. — but the number of black urban households increased by 20% during the same period. The rate of migration to urban areas thus outstrips the rate of uptake of EFS stoves by a considerable amount.
- Secondly, of total industry sales of 178 200 EFS stoves 1989-1991, only 39 370 or 22% went to the urban black market. This suggests that unlike consumer electronics products, EFS stoves remain unaffordable to black households.
- Thirdly, however, 35 000 gas stoves were purchased by urban black households during the same period — a 50% overall increase. 6 000 of these gas stoves went into electrified urban black households. Particularly amongst those earning R1 100 — R2 000 p.m., solid-fuel stoves seem to be shed in favour of gas stoves rather than EFS stoves. This may be due to fears of electricity supply interruption, the cost of EFS stoves, and serviceability problems.

(2) Income and Cooking Appliance Ownership

417 600 or 20% of urban black households earn more than R2 000 a month. 563 650 or 27% earn between R1 100 and R2 000 p.m. 522 000 or 25% of such households earn between R700 and R1 099 p.m., whilst 584 640 or 28% survive on less than R699.[34] Taking the 1991 Institute of Race Relations Minimum Living Level of R1 217 as a guide, 52% of urban black households (1 155 440) are trying to survive on less than the amount needed to provide for basic urban needs.

45% of urban black households in the >R2 000 income group own EFS stoves, whilst 5% own gas and 26% solid-fuel stoves. 34% of households in the R1 100 — R2 000 income group own an EFS stove, whilst 7% own gas and 32% solid-fuel stoves. 20% of households in the R700-R1 099 group own an EFS stove, whilst 4% own gas and 29% a solid-fuel stove; only 10% of households in the <R699 group own an EFS stove, whilst 4% own gas and 38% solid-fuel stoves.

70% of EFS stoves are thus owned by the 47% of urban black households in the >R1 100 group, which owns only 16% of urban black solid fuel stoves. Conversely, 30% of EFS stoves are owned by the 53% of urban black households earning less than R1 100 p.m., which own 84% of urban black solid-fuel stoves. *This suggests that income levels are a strong determinant of EFS stove ownership.*

Table C-3: Cooking Appliance Ownership and Income, Urban Black Households, 1991

Income Group	*Electric Freestanding*	*Gas*	*Solid Fuel*	*None*	*Other*
R2000+	45%	5%	—	26%	24%
R1100-R2000	34%	7%	32%	27%	—
R700-R1099	—	20%	4%	29%	47%
R1-R699	10%	4%	38%	48%	—

(Source: Confidential industry report.)

(3) Electricity and Cooking Appliance Ownership

The 1 046 088 households with connected and operating electricity make up approximately 51% of the total of 2 088 000 urban black households. This percentage has not increased since 1989, although the absolute number of electrified urban black households has increased by 90 000 p.a. from 884 850 to 1 064 880 — a 20,3% increase.

Although 95% of *electrified* urban black households have a cooking appliance of some sort (reflecting the longer urban residency of such households), only 50% have an EFS stove. Adding to this the 6% who own a built-in electric hob or oven and 7% who own an electric

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[34] These household figures are not to be confused with personal income. Only 11% of urban blacks earn more than R1 100 p.m., whilst 54% have no personal income at all.

hotplate gives a total of *only 63% of electrified urban black households owning an electric cooking appliance.*

Conversely, 29% of electrified urban black households own a solid-fuel stove. 3% of such households own a gas stove. Looked at the other way, 29% of urban black gas-stove owners (25 773), and 46% of solid-fuel stove owners (311 856) have electricity, but no EFS stove. *This means that 337 629 households, or 32,3% of electrified urban black households have yet to make the transition to electrical cooking.* 62% of these households are in the R1 100+ income group.

Adding to this the 4,7% of electrified households who have no cooking appliances gives a total of *387 052 or 37% electrified urban black households without an electric cooking appliance. It should be noted that this number is almost quadruple the number of EFS stoves sold during 1991 (108 200).*

(4) Income or Electricity?

319 197 or 76,4% of urban black households earning >R2 000 p.m. have connected electricity. 358 300 or 63,6% such households in the R1 100 — R2 000 bracket have electricity. 215 924 or 41,4% of households in the R700 — R1 099 slot are connected, whilst only 164 837 or 28% of households earning less than R699 p.m. are.

Table C-4: Electricity and Cooking Appliance Ownership, Urban Black Households, 1991

Appliance	*Percentage of Electrified UBH Owning*
All Cooking	95%
Electric Freestanding stove	50%
Built-in hob or oven	6%
Hotplate	7%
Gas stove	3%
Solid Fuel stove	29%

(Source: Confidential Industry Report.)

Within the 677 497 urban black households earning more than R1 100 p.m. who have electricity (69% of this income group), a total of 195 237 do not own an electrical cooking appliance. This represents 29% of R1 100+ households overall (i.e. electrified and non-electrified). Even amongst those electrified households earning more than R2 000 p.m., only 58,9% own an EFS stove. *Thus, more than 1/3 of the best-off electrified households in South Africa's black urban areas still do not have an EFS stove. 23,5% of electrified households in this income bracket still use a solid-fuel stove.*

The figures get worse as one moves down the income groups. As Table C-5 shows, amongst those electrified households earning R1 100 — R2 000 p.m., 53,5% own an EFS stove and 33,5% a solid-fuel stove. Amongst electrified households earning R700 — R1 099 p.m., only 48,4% own an EFS stove, and 25,5% own a solid-fuel stove. Amongst electrified households earning less than R699 p.m., the EFS stove figure drops to 35,5%, and that for solid-fuel stoves rises to 36,4%.

It should be noted from this chart that the percentage of households using a solid-fuel stove does not differ significantly between electrified and non-electrified households except at the R2 000+ p.m. level. At the under R1 100 p.m. level the percentage of electrified households using solid-fuel stoves is actually higher than for unelectrified households.

Above it was pointed out that between 1989-1991, the number of electrified urban black households grew by 180 030, a 20,3% increase. During the same period, the stock of EFS stoves owned by urban black households increased by only 39 730, representing a 7,9%. growth. On the other hand, the stock of electric hotplates owned by urban black households grew by 33,7% over the same period, by 105 300.

Table C-5: Cooking Appliance Distribution by Income and Electrification, Urban Black Households, 1991

	Income Group	R2000+: 417, 600 households				R1100-R2000: 563, 650 households			
		Electricity		No Electricity		Electricity		No Electricity	
1	Total Households	319,197	76.4%	98,403	23.6%	358,300	63.6%	205,350	36.4%
	Appliance	No.	%	No.	%	No.	%	No.	%
2	Electric f/s	187,920	58.9%	0	0.0%	191,641	53.5%	0	0.0%
3	Gas	20,000	6.3%	880	0.9%	18,000	5.0%	21,455	10.4%
4	Solid-fuel	75,000	23.5%	33,576	34.1%	120,000	33.5%	60,368	29.4%
5	Other or none	36,277	11.4%	63,947	65.0%	28,659	8.0%	123,527	60.2%
	Income Group	R700-R1199: 522,000 households				R1-R699: 584,640 households			
		Electricity		No Electricity		Electricity		No Electricity	
1	Total Households	215,924	41.4%	306,076	58.6%	164,837	28.2%	419,803	71.8%
	Appliance	No.	%	No.	%	No.	%	No.	%
2	Electric f/s	104,400	48.4%	0	0.0%	58,464	35.5%	0	0.0%
3	Gas	5,000	2.3%	15,880	5.2%	10,000	6.1%	13,385	3.2%
4	Solid-fuel	55,000	25.5%	96,380	31.5%	60,000	36.4%	162,163	38.6%
5	Other or none	51,524	23.9%	193,816	63.3%	36,373	22.1%	244,255	58.2%

Source: Own caculations based on confidential industry report.

Note: Row 1 lists the number and percentage of black urban households in each income group with and without electricity. Rows 1 — 4 list the number and percentage of households with and without electricity, within each income group, owning that appliance.

Lack of access to the underlying data has precluded a formal statistical analysis. Nevertheless, it seems fairly clear that *access to electricity in and of itself does not guarantee use of major electrical appliances such as EFS stoves.* Instead, takeup of such appliances is strongly linked to income levels. As one industry study argues,

> The significant decrease in total stoves...and in total freestanding stoves can be ascribed to the current macro economics (sic) of this country, the increasing influx of rural people coming to the cities, the ongoing electrification saga *PLUS the lack of affordability of a conventional electric stove to an increasing proportion of black urban households*....the purchase of a gas stove is not exclusively driven by lack of electrification...there is no

conventional electric stove on the market which is affordable to an increasing proportion of urban black households and takes into account the possibility of less amperage being supplied to these households by ESKOM compared to white areas.[35]

In addition, however, factors other than access to electricity must be taken into account:

- *The feasibility of electrical cooking appliance usage.* Some urban black households may not be able to use such appliances because of space problems. This may be particularly true of households which have recently migrated to urban areas and who are living in backrooms, shacks, squatter camps, and huts. This is approximately 18% of urban black households. From 1989 to 1991 the number of adults living in inadequate accommodation in urban areas increased by 600 000. The number of adults living in squatter camps alone grew by 128 000 from 98 000 to 226 000 (a 30,6% increase). In the PWV area, 43% of the urban black population is living in informal housing. 69% of those in the Durban Functional Region live in such housing. Overall, the shortage of housing in South Africa is approximately 1,2m units.[36]

Table C-6: Electrification and EFS Stove Penetration, Urban Black Households, 1989-1991

	1989	*1991*	*Increase*	*% Change*
Electrified Hshds.	884 850	1 064 880	180 030	20,3%
EFS Stoves	503 150	542 880	39 730	7,9%
Hotplates	312 300	417 600	105 300	33,7%

Source: Confidential Industry Report.

- *The difficulty of obtaining finance because of insecurity of tenure.* Only 46% of urban black households owned their own homes in 1991 (up from 36% in 1989). Given the income levels involved, home ownership would be a prime means of providing security for HP purchases of appliances. As one might expect, the percentage of urban black households who own their own homes declines with income. 70% of the R2 000+ households own their own homes, compared to 50% of the R1 100 — R2 000 group, 40% of the R700 — R1 100 group, and 33% of the R1 — R699 group.

(5) Key Points

The fundamental point of this discussion is that *access to electricity is a necessary but not sufficient condition for ownership of an EFS stove*, which is a major source of electricity consumption. Either black disposable incomes must rise or stove prices must fall, or both, in order for the benefits of electrification to be felt.

White goods manufacturers and industry analysts believe that of all the products of this branch, EFS stoves are the least affordable to black households. When urban black

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[35] From a confidential industry report. Emphasis in the original.

[36] Urban Foundation estimates.

households began to make the switch from solid-fuel stoves in the mid-1970s, no appropriate, affordable alternative yet existed. To date EFS stoves remain unaffordable to the majority of urban black households. The alternative has been electric hotplates, which have increased by 37,7% between 1989-1991. According to an ESKOM report, this is not because such appliances "are...regarded as satisfying needs but...because there is no viable alternative".[37] This issue will be explored further in later chapters.

b) Refrigeration Equipment

The affordability situation is greatly improved with respect to refrigeration products. Although 97% of white households and 95% of Asian households own refrigerators, 66% of 'coloured' households and only 20% of black households own one. Because of the numerical preponderance of black households, this brings the national ownership level down to 42,6% of households.

Table C-7: Urban Black Household Ownership of Refrigerators, 1987-1991

		1987		1989		1991
Households 000's		1,655		1,904		2,222
Adult Population 000's		5,574		6,135		7,077
	%	Units	%	Units	%	Units
Total Fridges	43%	711,650	42%	799,680	48%	1,066,560
Single door — total	17%	281,350	26%	495,040	28%	622,160
Electric	NM	NM	19%	361,760	20%	444,400
Paraffin	NM	NM	5%	95,200	5%	11,110
Gas	NM	NM	2%	38,080	3%	66,660
Combination	NM	NM	1%	17,136	0.4%	8,888
Double door — total	26%	430,300	1%	304,640	21%	466,620
Electric	NM	NM	15%	285,600	21%	453,420
Paraffin	NM	NM	0.3%	5,712	0.3%	6,600
Gas	NM	NM	0.2%	3,808	0.3%	6,600

Source: Confidential industry report. NM = Not measured.

Between 1989 and 1991, 345 600 refrigerators were sold to the retail trade. Of these, 266 879 went to the urban black market. This means that over the period *this market accounted for 77% of sales — again, a radically different situation from EFS stoves.*

Electricity is the most common form of power for these appliances, with minimal percentages using paraffin or gas. Most electric fridges owned by urban black households are under 10 years old.

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[37] Quoted in the industry report used as the basis for this section.

(1) Electricity and Refrigerator Ownership

Of the 1 064 880 urban black households with electricity, 76% own an electric refrigerator. Only 2% use a non-electric fridge. 12% of households using a paraffin fridge have electricity, as do 3% of those using gas fridges. No urban black households with electricity has bought a non-electric fridge over the last decade. *191 678 or 18% of electrified urban black households have no fridge, however.* Again, this compares favourably with the situation for electrical cooking products, where 387 052 or 37% of electrified households lack an electrical cooking appliance and 50% lack an EFS stove. *It should be noted that the number of electrified urban black households without a fridge is greater than the total refrigerator sales for 1991 (218 100).*

Table C-8: Electrification and Refrigerator Penetration, Urban Black Households, 1989-1991

	1989	*1991*	*Increase*	*% Change*
Electrified Hshds.	884 850	1 064 880	180 030	20,3%
Refrigerators	799 680	1 066 560	266 880	33,3%

Source: Confidential Industry Report.

(2) Income and Refrigerator Ownership

Although information on this issue is not as readily available, what there is supports intuition. 65% of electric single-door and 76% of electric double-door fridges owned by urban black households are owned by households in the R1 100+ p.m. income group. Overall, 71% of such households own an electric fridge. *This means that 284 562 households earning over R1 100 p.m. have yet to obtain an electric fridge.* Conversely, 64% of paraffin fridges are owned by those earning under R1 000 p.m. Only 35% of electric single-door and 25% of electric double-door fridges are owned by these households.

(3) Key points

Fridge penetration of the urban black market is more advanced than for EFS stoves. This is due to two factors:

- Firstly, unlike EFS stoves, no viable substitute good exists. Gas and paraffin fridges are no longer manufactured locally.
- Secondly, the average cost of a new refrigerator is much lower than for an EFS stove. This is a more affordable item for urban black households.

Again, although electrification is necessary to ownership of a refrigerator, income levels and access to suitable accommodation are still fundamental determinants. One interesting but speculative point is that fridge ownership by urban black households may be less urgent because of the well-developed system of informal *spazas* in black urban areas, which may allow cold products to be purchased directly.

c) Laundry Products

87% of white households, 45% of Asian households, 40% of 'coloured' households, and 2,6% of black households shared the national stock of 1 869 869 washing machines in 1991. Overall, the rate of penetration for this product is a low 25%.

Only 6% of urban black households own washing machines. This percentage has not grown since 1987, although the number has grown from 99 330 to 133 320 — a 34% increase. 56% of this increase was from 1989-1991. As with refrigerators, ownership levels have increased less rapidly than electrification.

Table C-9: Urban Black Household Ownership of Laundry Products, 1987-1991

	1987		1989		1991	
Households 000's	**1 655**		**1 904**		**2 222**	
Adult Population 000's	**5 574**		**6 135**		**7 077**	
	%	**Units**	%	**Units**	%	**Units**
Total Washing Machines	6%	99 300	6%	114 240	6%	113 320
Single/twin tub	3%	49 650	3%	57 120	2%	44 440
Automatic — total	3%	49 650	3%	57 120	4%	88 880
Top Load	NM	NM	NM	NM	3%	66 660
Front Load	NM	NM	NM	NM	1%	22 220
Tumble Driers	0.4%	6,620	0.3%	5,712	1%	22,220

Source: Confidential industry report. NM = Not measured.

Unlike EFS stoves and refrigerators, ownership of a washing machines is limited to urban black households with electricity and connected running water. Only about 10% of electrified urban black households have a washing machine. 76% of all washing machines owned by such households are owned by those who own their own homes. 77% of twin tubs, 85% of automatic top loaders and 81 of front loaders are owned by those earning R1 100+ p.m. *The number of electrified urban black households without a washing machine, 958 392, is over seven times the 1991 annual sales of such appliances of 138 900.*

Only 22 220 or 1% of urban black households own a tumble dryer. This represents a 235% increase since 1987, however. *The number of electrified urban black households without a tumble dryer, 1 042 660, is 27 times the 1992 annual sales of this product of 37 400 units.*

(1) Key Points

Laundry products are perhaps the best indication of the fact that electrification on its own does not guarantee appliance penetration. Although ownership levels amongst urban black households have increased dramatically over the last six years, they remain abysmally low compared to those for whites. Major factors inhibiting the penetration of such products are undoubtedly access to running water and the availability of human labour as a substitute.

Table C-10: Electrification and Laundry Product Penetration, Urban Black Households, 1989-1991

	1989	*1991*	*Increase*	*% Change*
Electrified Hshds.	884 850	1 064 880	180 030	20,3%
Washing Machines	114 240	133 320	19 080	16,7%
Tumble Dryers	5 712	22 220	16 508	289%

Source: Confidential Industry Report.

d) Television

The average white South African household owns more than one television. The same is true for Asian households. 75% of 'coloured' households own a TV. But only 32,5% of black households own this basic modern communications device. It is little wonder that explicit government policy towards the television industry has always included incentives to manufacture cheaply for the black market.[38] We will now look more closely at the urban black market for televisions.

(1) Type of Television Owned

In 1991 58% or 1 288 760 urban black households owned a television. 52% of these were monochrome (henceforth MTV) and 48% were colour (henceforth CTV).

The number of urban black households owning televisions increased from 744 750 in 1987 to 1 288 760 in 1991 — a 73% increase. Three-quarters of this growth was between 1989 and 1991. Recent growth was been faster in CTV than MTV, and the percentage of urban black households owning CTV has risen whilst that for MTV has fallen. 81% of current urban black owners say their set is the first one they have owned. Nearly 70% of televisions in urban black households are less than 10 years old. 66% of CTVs have been bought in the last five years, compared with 70% of the MTVs. 35% of urban black households with television own units less then 2 years old. This implies that an average of 225 533 televisions have gone into the urban black market each year for the last two years. *This represented more than 70% of the annual market for televisions in 1991. This confirms the point, made above, that most HED growth in recent years has been amongst black buyers of consumer electronics products such as televisions.*

80% of urban black households with electricity own a television, but only 70% of urban black TV owners have electricity. This is due to the prevalence of using 12-volt batteries to run TV and hi-fi sets. CTV ownership is concentrated in electrified homes, however, with 91% of the total. Only 51% of MTVs are in electrified homes.

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[38] See Chapter Four.

Table C-11: Urban Black Household Ownership of Video Products, 1987-1991

	1987		1989		1991	
Households 000's	**1 655**		**1 904**		**2 222**	
Adult Population 000's	**5 574**		**6 135**		**7 077**	
	%	**Units**	%	**Units**	%	**Units**
Televisions						
TV in home	45%	744 750	46%	875 840	58%	1 288 760
No TV	55%	910 250	54%	1 028 160	42%	933 240
1 TV	NM	NM	44%	837 760	54%	1 199 880
2 TVs	NM	NM	2%	38 080	4%	88 880
Colour Total	40%	300 400	45%	389 700	48%	614 400
Black and White Total	62%	465 620	55%	476 300	52%	665 600
Video Cassette Recorders						
VCR in home	2%	33 100	3%	57 120	8%	177 760
No VCR in home	98%	1 621 900	97%	1 846 880	92%	2 044 240

Source: Confidential industry report. NM = Not Measured.

Table C-12: Electrification and Video Product Penetration, Urban Black Households, 1989-1991

	1989	*1991*	*Increase*	*% Change*
Electrified Hshds.	884 850	1 064 880	180 030	20,3%
Colour Televisions	389 700	614 400	19 080	57,6%
Mono Televisions	476 300	665 600	189 300	39,7%
VCRs	57 120	177 760	120 640	211%

Source: Confidential Industry Report.

The rate of television and VCR penetration is well in advance of the rate of electrification of urban black households. *It should be noted that the 212 970 electrified urban black households without televisions represent 68% of annual TV sales in 1991.*

(2) Income and Television Ownership

62% of TVs in urban black households are owned by those earning more than R1 100 p.m. 71% of urban black households earning more than R2 000 p.m. have at least one TV, whilst 11% have two. By contrast, only 32% of those earning less than R699 p.m. have a television — still a remarkable percentage.

(3) VCR ownership

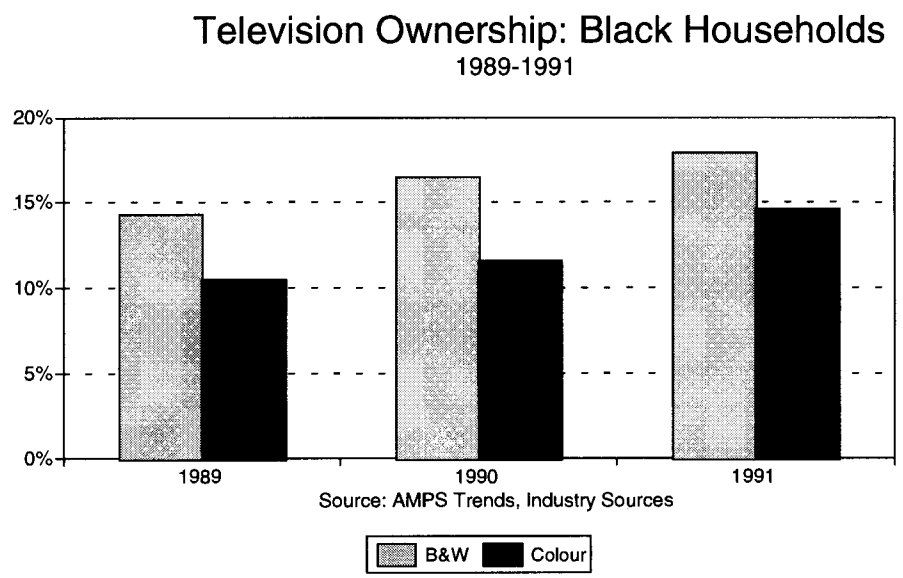
By contrast, VCR ownership amongst urban black households is relatively low. Only 14% or 177 760 households own such a device. 25% of those with CTV, however, also have a VCR. Penetration of VCRs has doubled since 1989. 85% of VCRs belong to households

earning R1 100 p.m. or more. 93% of urban black VCR owners have electricity, but only 19% of urban black households with electricity have a VCR. 96% of those owning CTV and a VCR have electricity. *The 862 552 electrified urban black households who had no VCR represented more than eight times the South African market for such devices.*

(4) Key points

86% of urban black households with television bought the unit new. Rental is negligible in the urban black market, reflecting inability to provide security. Availability of electricity, suitable accommodation, and security of tenure is not a barrier to television ownership *per se*, but to a certain extent ownership of expensive CTV and especially VCRs is limited by the high risk of theft. *Nevertheless growth in both CTV and VCR ownership has been dramatic in recent years.*

Figure C-5



D. Summary

1. The fortunes of the HED industry are closely linked to overall economic health. Movements in personal disposable incomes and private consumption expenditure are particularly important.
2. The fortunes of the industry are also linked closely to government credit policy. Government has consistently intervened to limit growth of hire-purchase sales when it has appeared that HED sales have been based on unsustainable credit and dissaving rather than growth in personal disposable incomes. This has resulted in two significant and sudden downturns, in 1983-84 and 1988-89.

3. Sales of HEDs rose strongly dramatically between 1979 and 1983, and dramatically in 1984-5, only to fall rapidly in 1985-86. A brief period of moderate growth 1986-1989, punctuated by a brief boost in 1990, has been followed by stagnation, turning to severe decline.

4. Overall, the market for white goods shrunk by nearly 9% in 1992. The market for consumer electronics products has suffered similarly. Sales for 1993 were similarly depressed. In real terms, in 1993 the HED market was at roughly the same level as in 1971.

5. Falling real expenditure on HEDs has mean that he stock of such goods has aged considerably over the last decade years. Significant replacement demand has been built up in traditional market sectors.

6. Distribution of HEDs remains very unequal in South Africa. In general black ownership of major appliances is severely limited compared to whites. The divergence is less with respect to consumer electronics, but still severe. Nevertheless, black consumers are the only major growth market for this industry.

7. Electrification has had an impact on urban black household ownership of HEDs, but income remains the principal barrier. Urban electrified black households remain slow to take up some appliances, particularly electric freestanding stoves.

8. Growth in appliance ownership amongst urban black households has been very rapid in the last few years. Nevertheless, even amongst electrified households, overall penetration of HEDs remains low. In many cases, the number of electrified households without an appliance is many times that product's current annual market in South Africa. This indicates that a massive potential growth market exists should the gap between income and appliance cost narrow.

1. Some Concluding Comments

The fundamental problem afflicting the HED market is the inability of black consumers to afford these products as they are presently priced in South Africa. All policy towards this industry must begin with this in mind. This raises the question of whether the South African HED industry is succeeding in supplying the population's 'basic needs'. At face value, it is not. But could any industry profitably supply black South Africans with HEDs at prices which the former could afford? Research overseas indicates that comparable products are 20-50% less expensive on the sales floor. This raises the question of whether or not it would be preferable to import such goods, to which Chapter Seven will return, but does not necessarily imply that such goods would be *substantially* more affordable to black consumers. If not, this raises another question: is South Africa ready for an HED industry at all?

In many ways, South Africa only has an HED industry because of the import-substitution policies of a minority government intent on self-sufficiency and increased white living standards. Accordingly, many in South Africa have come to regard HEDs as luxuries rather than necessities, compared to food, shelter, and clothing. Certainly that sentiment has been raised by some in the course of discussions with interested organisations in South Africa. Yet it is doubtful whether televisions and music centres can be regarded as luxuries in an age

of advanced media — certainly not by township dwellers. And from the perspective of any new government mass access to electronic media will not be a luxury: it will be an integral part of the apparatus of government.

A mass housing and electrification programme seems to present the ideal opportunity to provide basic labour-saving, entertainment and information products to black households. The essential problem with this project may not be whether the South African HED industry can produce the appropriate goods efficiently enough to be import-competitive, but whether growth-oriented redistributive economic policies can raise disposable incomes to a level at which they are affordable to the majority. At present, the HED industry faces a stagnant market in a context in which it and its suppliers are already unable to achieve the economies of scale which would justify the investment needed to produce competitively.

As we shall see, it is very difficult to tell whether the HED industry could achieve this transformation, were it given the opportunity. It is to the production of HEDs in South Africa that we now turn.

Chapter Two: Production of Household Electrical Durables In South Africa

A. Introduction

The South African HED industries can be surveyed from any of a number of viewpoints. In Chapter One we viewed it from the perspective of the final market for its products. Chapter Three will consider its global setting, discussing international trading conditions and imports and exports. Chapter Four will develop a basic model of electrification's impact on the HED market, on the manufacturing industry, and on trade.

This chapter is an overview of South Africa's HED *manufacturing* industries. It asks: what do we need to know about this manufacturing industry in order to develop an industrial policy for it? Although Chapter Five also treats these issues, it does so primarily through case studies. Here we will present essential descriptive information about the industry as a whole, and the issues which shape any approach to industry policy towards it.

B. The Competitive Context of the South African HED Industries

1. Brand Names, Competition, and Manufacturing

It is essential to understand what an HED firm actually does, and what defines the competitive environment it faces. In South Africa, such a firm usually performs several tasks:

- *The supply of HED products to the retail trade.* This is based on ownership of a 'brand-name' (or names), which allows the firm to charge a premium above and beyond the 'value' of its product. The value of this premium is a determined by consumers' assessment of the brand's reputed functionality, quality, and durability relative to cost — 'value for money'. In other words, brand-name is the source of *product differentiation* in the HED industry. A strong brand-name allows an HED firm to charge more than its competitors for products which may contain fundamentally similar manufacturing costs. The development, protection, and management of brand-name(s) is thus a fundamental task.
- *The manufacture of HED products.* This is usually carried out by a subsidiary company which sells all of its output to the parent firm. In most South African cases these subsidiaries are wholly-owned by the parent.
- *The importation of HED products* which cannot profitably be produced locally.

The traditions, historical development, and structural-strategic position of South African HED firms lead them to devote considerable effort and imagination to brand-name strategy.

Brand-name product differentiation, of course, is not specific to the South African HED industry, and is the principal element of competitive strategy in major HED markets throughout the globe. But in such markets brand-name strategy overlays a competitive manufacturing environment in which essentially generic product ranges are reconfigured for particular national or regional market tastes. To an extent, manufacturing competitiveness there has its own dynamic of development, as plants supply a range of branded products to various national and regional markets, striving to achieve cost leadership through volume and technological superiority.

In South Africa brand-name strategy is a higher stakes game: South African firms do not have the advantage of a high-volume environment, and manufacturing operations are subordinated to a much greater extent to marketing imperatives. Indeed, were South African HED firms to be forced to compete on a purely cost-leadership basis, nearly all of them would be wiped out in short order, either by one another or by low-cost, high-volume Far Eastern plants.

Customer loyalties and preferences give South African firms considerable advantage over foreign competitors. The inertial quality of brand loyalty also gives them a leeway to experiment — and err — which is absent from industries who compete on a purely cost-leadership basis.

2. Brand-Names and Competition in a Low-Income Market

Paradoxically, given their association with superficiality, brand-names are particularly important to all but the very poorest South Africans. Quality and trustworthiness are highly valued attributes in conditions of poverty, uncertainty, and difficulty in obtaining service. For such consumers, brand-names serve as reference points in a situation of high-stakes uncertainty. Nevertheless, the large number of very poor consumers in South Africa has led to the development of non-branded products, often launched by new entrants or importers.[1]

This situation imposes a fine balancing act on established HED firms. On the one hand, their competitive edge in traditional middle- to upper-income markets depends largely on brand-names. To maintain them, they must preserve the perception of quality and value, and seem loathe to jeopardise this by entering the non-branded or off-brand market, even under different brand-names. On the other hand, they are under intense pressure to keep unit costs down, even for their branded products. This depends on their ability to achieve sufficient factory throughput — which in turn tempts them to add lower-priced products to increase overall volumes.

Interviewees from established firms were uniformly uncomfortable with this problem, and seemed reluctant to commit themselves to a higher-volume, lower-cost model of competition if this meant producing 'cheaper' products. It seemed that a logical manufacturing strategy was obstructed by marketing imperatives.

These considerations point to a key conclusion: South African HED firms are essentially marketers or wholesalers who own manufacturing plants from which they buy if it is

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[1] Particularly in small appliances, televisions and grey-market consumer electronics more generally. The introduction of 'AIM' microwaves and 'Giant' televisions are cases in point.

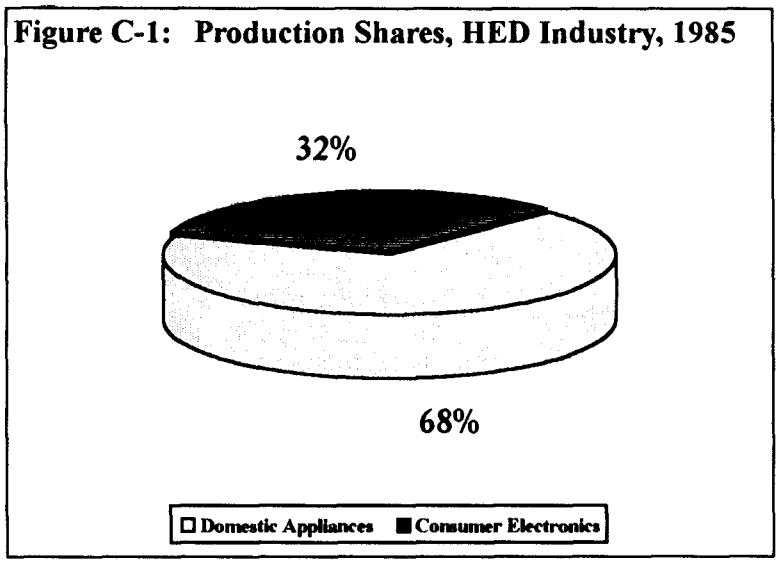
profitable. Every evidence points to a marketing-driven corporate orientation, which works to undermine competitiveness by devaluing strategies which depend on the development of *manufacturing* capability — a risky effort which will perforce take time and resources.

Were they to go some way to reversing this orientation, HED firms might be able to compete more effectively with their overseas counterparts. Yet to do so, they would need to become more flexible manufacturers, with the capacity to run both branded and unbranded products though the same factory. This would require a significant reorientation, as we shall see in Chapter Five.

C. Basic Production data

In Chapter One we surveyed trends in HED market volumes. Let us look now at *production* data.

Figure C-1: Production Shares, HED Industry, 1985



1. Structure of Output

Unit production figures from the 1985 census give an indication of the share of local HED output for various items.[2] White goods and small appliances took up 67,9% of HED output in that year, whilst consumer electronics accounted for 32,2%.

Of *domestic appliances*, 46% of unit production was of cooking equipment, 35% of refrigeration equipment, 9% of domestic laundry equipment, and 10% of domestic heating equipment. Within cooking equipment, 30% of unit production was of electric stoves, 23% of coal and wood stoves, 12% of gas stoves, and 25% of other stoves, hobs, and ovens. 10% of production was of hotplates. Within refrigeration equipment, 57,5% of unit production was of electric fridge/freezers, 11,6% of non-electric (gas) fridges, 11,6% of electric deep-freezes, and 16,9% of other freezers. Within laundry equipment, 88% of unit production was of washing machines and parts, and 12% of dryers and parts.

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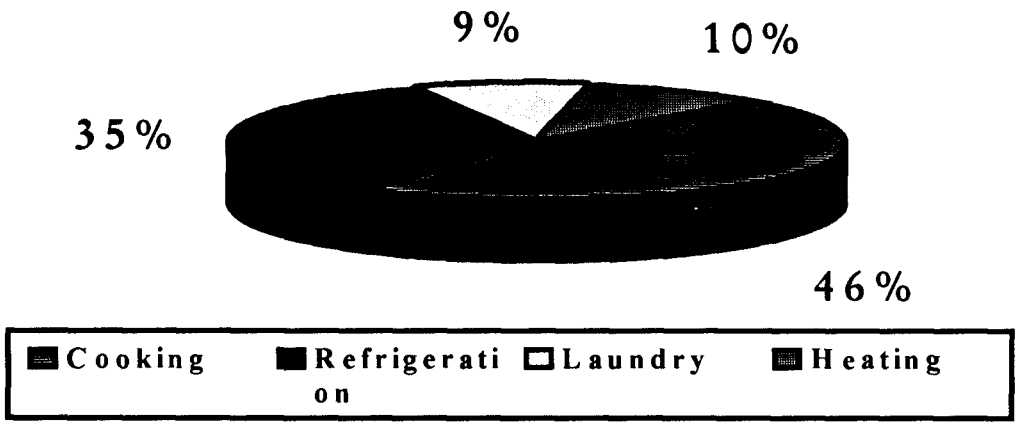
[2] These figures are meant only to indicate the relative importance of particular classes of products in South African HED manufacturing.

Figure C-2: Domestic Appliance Production Shares, 1985



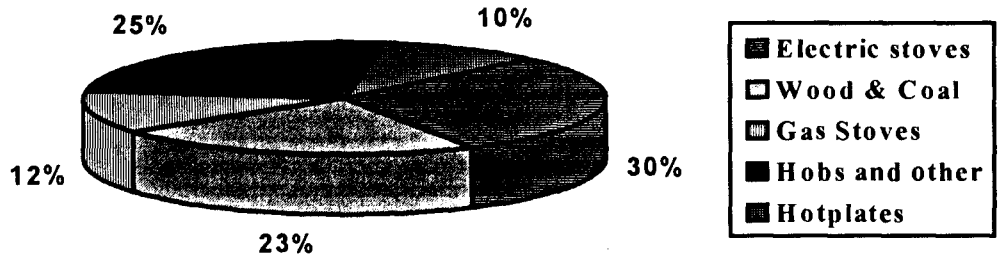
Of *consumer electronics*, 89,3% of unit production was of televisions, 6,9% of non-hi-fi audio equipment, and 2,9% of hi-fi equipment. 1% was of microphones and loudspeakers. Within televisions, 19% of production was of monochrome TVs, and 81% of colour TVs.

Several things bear noting here:

- In unit terms, lower-technology domestic appliances have been of relatively greater importance to the South African HED industry than consumer electronics.
- Within domestic appliances, the largest proportion of output is accounted for by lower-technology cooking appliances.
- Within cooking products, a surprisingly large proportion of unit output is accounted for by low-technology (and low-value) coal and wood stoves.

Figure C-3

Cooking Appliance Production Shares, 1985



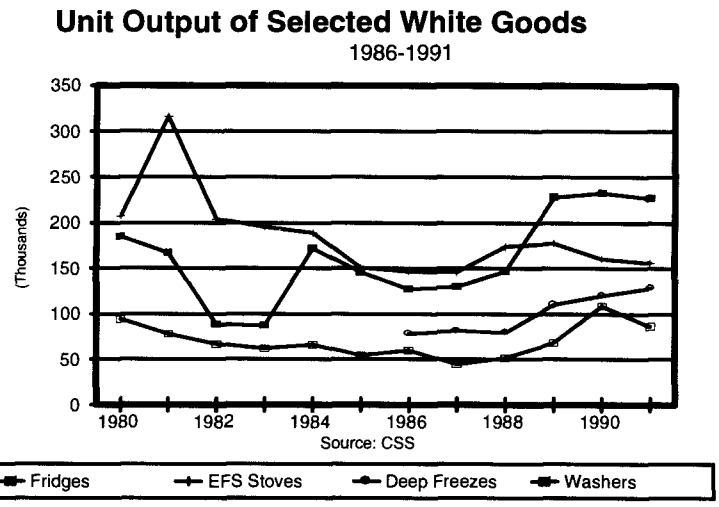
2. The HED Industry In The Economy

This section looks at the HED industry in aggregate terms, in comparison to the rest of the South African economy and to the engineering sector.[3]

a) Output

(1) Unit Output

Figure C-4



White goods:

Unit output of a number of white goods is shown in Figure C-4. After falling slowly from a strong peak in the early 1980s, output of many products fell until 1984, when it rose slightly. This result may seem surprising given the stress placed on the 'mini-boom' of 1983-84 in Chapter One, but actually illustrates the way in which the 'marketing' orientation of the HED industry may undermine its ability to achieve competitiveness in domestic manufacturing.

The 83-84 upswing was accompanied (and partly based on) a dramatic improvement of exchange rates. Whilst domestic unit output of HEDs rose only slightly (with the exception of refrigerators), unit imports rocketed, nearly doubling in one year in some cases (see Chapter Three). As several industry executives put it, the reason for this was simple: margins on imported products during this period were so much better than on domestic manufactures — even with significant duties — that managers were left with little choice but to increase the import share of their local supply. Lower priced final products and upward pressure on components and raw materials made this an obvious step.

Unit output again slumped until 1988, when local production grew rapidly on the basis of a weaker exchange rate and low interest rates. From 1989/90 onwards, domestic output has stagnated or declined.

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[3] By 'engineering sector' I mean those sectors manufacturing articles made primarily of metal, from structural metal products to automobiles. It does not include base metal producers.

Consumer Electronics:

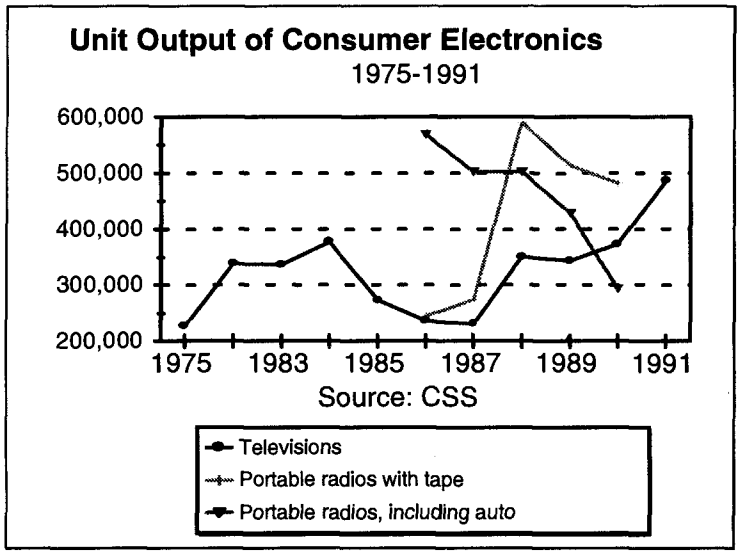
Recent unit output of consumer electronics products (Figure C-5) shows a more consistent picture. Because of a highly protective duty structure, television production has tended to maintain a pro-cyclical trend with respect to the economy. Unit output thus rose during 1983-84 and fell until 1988-89, when it again began to rise. Its continued rise during this recessionary period may be explained in part by the entry of low value-added 'screwdriver' assemblers of import-intensive SKD kits.[4]

Audio product output shows a steeply declining volume of radio production, as local manufacturers fail to keep up with falling production costs in the Far East, even under high rates of protection. Output of popular radio-tape combinations rose in 1988, only to fall again.

(2) Market Value

Estimating the size of the HED industry within the manufacturing sector is rendered difficult by lack of accurate data on ex-factory sales. Using the estimates developed table C-1, however, it is possible to present rough orders of magnitude.[5] For each branch of the HED industry, figures are presented in comparison to the manufacturing sector, the engineering sector — defined as all metals fabrication and assembly sectors — and the engineering sector without automobiles.

Figure C-5



White Goods:

At R850m, ex-factory sales of white goods were roughly 0,28% of GDP and 0,45% of manufacturing output.

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4 Chapter Three will return to the issue of local and import shares of the domestic market. It is worth remembering, however, that the marketing orientation of the major HED firms, discussed above, is a key variable in determining the mix of domestic and import supply to the South African market. Since most imports are supplied by the same firms who manufacture products locally, it is evident that wholesale profitability considerations may not necessarily support the objectives of maximised local manufacture. Thus local output figures may be less an index of manufacturing vitality than of exchange rate fluctuations.

5 This table, presented earlier in Chapter One, is based on estimates given by a variety of interview sources. It must be treated as a best-guess!

This was 1,85% of the output of the engineering sector, including motor vehicles, and 2,69% of the output of the sector excluding motor vehicles. It was 18% of domestic production in ISIC 3829.[6]

Small Appliances:

At R117m, ex-factory sales of small appliances were 0,05% of GDP, 0,08% of manufacturing output, 0,5% of engineering sector output, excluding motor vehicles, and 0,34% of total engineering sector output.

Consumer Electronics:

At R621m, ex-factory sales of audio and video products were 0,21% of GDP, 0,32% of manufacturing output, 1,97% of engineering sector output, excluding motor vehicles, and 1,35% of total engineering sector output.

Table C-1: HED Market Breakdown: 1992

Item	*Retail Value*	*Wholesale Value*	*Local Production*	*Local Production Share*
White Goods	R1,6bn	R1,21bn[7]	R850m[8]	(53%)
Small Apps	R338,7m	R256m[9]	R117m[10]	(34,5%)
Total Domestic Appliances	**R1,93bn**	**R1,47bn**	**R967m**	**(50%)**
Audio	R850m[11]	R446m	R174m	(20%)
Video	R951m[12]	R609m	R447m	(47%)[13]
Total Consumer Electronics[14]	**R1,8bn**	**R1,05bn**	**R621m**	**(34,5%)**
Total	**R3,73bn**	**R2,53bn**	**R1,59bn**	**(42,6%)**
VAT Paid	R370m			
VAT Incl.	R4,1bn			

Total:

In total, ex-factory sales of HEDs of R967m represented 0,33% of GDP, 0,51% of manufacturing output, 3,06% of non-motor engineering sector output, and 2,1% of total

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6 Other machinery, except electrical.

7 This and previous figure based on data supplied by TEK Corp.

8 Calculated by subtracting the FOB value of white goods imports (from Customs & Excise) plus 30% average duty from the value of wholesale sales.

9 Approximate.

10 Estimated.

11 TEK Corp. estimate.

12 Estimate based on figures supplied by the Retailer Liaison Committee.

13 Much higher if video recorders and cameras are excluded.

14 Consumer electronics figures are from BMI 1992 Electronics Report and must be regarded as approximate.

engineering sector output. By contrast, production of motor vehicles was 4,8% of GDP, 7,6% of manufacturing output, and 31,3% of engineering sector output.

b) Vital signs

(1) Value Added[15]

White Goods:

At approximately 18%, the 1992 value added from domestic white goods manufacture was approximately R150m. This was 0,26% of domestic manufacturing value added, 1,45% of engineering sector value added excluding motor vehicles, and 1,05% of total engineering sector value added. The share of value added for white goods is thus considerably lower than its share of engineering and non-vehicle engineering output.

Small Appliances:

1992 small appliances value added of R25,7m was 0,04% of manufacturing value added, 0,18% of non-motor engineering value added, and 0,24% of total engineering value added. Its share of value added is thus also lower than its share of output, but not by as much as white goods.

Consumer Electronics:

Consumer electronics rate of value added is approximately 20%. This gives a figure of R124m, which is 0,2% of manufacturing value added, 1,2% of non-motor engineering value added, and 0,86% of total engineering value added. This is again significantly lower than its share of output.

Total:

Assuming a weighted average value-added rate of 18% (confirmed by most interview sources), total manufacturing value added[16] for the HED industry was approximately R286m in 1992. This was approximately 0,5% of domestic manufacturing value added, 2,7% of total non-motor engineering sector value added, and 2% of engineering sector value added.

This is somewhat lower than the HED industry's contribution to comparable output figures. This is because its 18% average rate of value added is lower than that for domestic manufacturing, which is approximately 30%, or for the engineering sector (31%). It is closer to that for motor vehicles, however (24%).

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[15] Unfortunately it has proved impossible to produce accurate time-series figures for value added — even those for 1992 are estimates developed from secondary information gleaned from industry sources.

[16] Excluding value added arising from wholesale and retail operations.

(2) Employment[17]

White Goods:

Industry estimates put total employment in the manufacturing branch of the white goods industry at approximately 6 400 persons. This is 0,44% of manufacturing employment and 2,25% of employment in the engineering sector, excluding motor vehicles. It is 1,6% of total engineering sector employment.

Small Appliances:

Total employment in the small appliances branch is estimated at 1 800 persons. This is 0,12% of manufacturing employment, 0,63% of employment in the engineering sector, excluding motor vehicles. It is 0,46% of total engineering sector employment.

Consumer Electronics:

The 1992 BMI Electronics Report estimates total employment in the audio and video sub-industry as 6 800 persons, making it proportionately the same as the white goods branch.

Total:

Total employment in the HED manufacturing industry is thus roughly 15 000 persons. This is a little over 1% of manufacturing employment, 5,2% of employment in the engineering sector, excluding motor vehicles, and 3,9% of total engineering sector employment.

Employment in the HED industry has dropped considerably since 1990, especially in the small appliances and white goods branches (interview sources). This can be explained largely by recessionary conditions, but interviewees expressed little hope that even a significant turnaround in the industry's fortunes would replace lost jobs. Instead, almost any conceivable restructuring of the industry, technological or otherwise, is expected to increase output per employee (see below). Thus, in the absence of significant unit output growth through expanding domestic or export markets, the HED industry will not be an employment generator. And given extremely low levels of capacity utilisation — 30% in many cases — even a rapid growth in the domestic market as might be expected to result from electrification initiatives will not generate new employment.

(3) Capital Stock

Figures for total manufacturing capital stock in the industry are not available.[18] The most recent available aggregate data are from the 1985 manufacturing census. In that year firms producing *and distributing* white goods held a total fixed capital stock of R89,65m; radio and television R327,09m (est.); and small appliances R27,99m.[19] Altogether this was R444,66m, or 0,45% of total manufacturing capital stock in that year. It was also 3,7% of engineering sector capital stock and 6,14% of non-motor engineering capital stock.

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[17] Again, it is difficult to estimate employment in the absence of reliable current data. The following is based on various sources and must therefore be treated with caution.

[18] At the very end of the ISP I was told definitively that the industry could not provide such figures.

[19] Republic of South Africa, *1985 Census of Manufacturing*, Pretoria, 1986: 44. Figures converted to 1990 Rands.

IDC figures supported by anecdotal evidence (IDC: 1992) suggest that the HED industry's capital stock has been depreciated at an alarming rate over the last five to seven years. No new investment was foreseen by interviewees, but the arrival of Powertech may signal further investment. Similarly, towards the end of the ISP rumours began to float of a Daewoo investment in television tube manufacture in conjunction with Anglo-American. This would be a brave step.

(4) K/L Ratios

As would be expected the capital/labour ratio is generally lower in this industry than in the economy in general. 1985 census figures give capital/labour ratios of R11 539 for white goods, R20 037 in radio and TV, and R10 355 for small appliances.

However, the *manufacturing* K/L ratio (i.e. excluding import, distribution and financial stocks and assets) is even lower. For example, in the TV manufacturing industry it would appear that each job involves about R15 000 in manufacturing capital stock, compared to the manufacturing average of R66 000. In this case this is due primarily to the assembly nature of local production. The figure is probably higher for the appliance branches, which involve greater fabrication. For one small appliance firm studied, for example, the K/L ratio was closer to the manufacturing average at R41 600 per employee. This was in fact higher than the R31 400 average for the engineering sector.[20]

(5) Labour Productivity

Labour productivity in the HED industry varies considerably between branches and firms. For example, Tedelex' Atlantis television factory estimates 4 labour hours per set, compared to 2,5 hours in Far East. Yet National Panasonic's Parow plant reports labour productivity roughly equal to its competitors — its higher costs come from lack of throughput. Amalgamated Appliance reports its labour productivity to be roughly double that of its main competition in Southern China, but its wage rates to be five times higher. This points to the problem of unit labour costs and the need for capital investment to improve productivity in the industry.

In aggregate, local output per worker in the HED industry in 1991 can be very roughly estimated at: white goods, R151 093 per employee; small appliances, R65 000; consumer electronics, R91 323. For the entire industry the figure is R106 000 per worker. This may be compared to the manufacturing average of R130 263 per employee, and to the engineering average of R118 436 and R111 059 for non-motor engineering. The HED industry is thus relatively more labour-intensive than other manufacturing and engineering industries.

(6) Capital Productivity

Output/capital ratios for the HED industry can be estimated from the 1985 Census of Manufacturing as follows: white goods, 2,95; small appliances, 3,2;[21] consumer electronics,

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[20] Probably due to the excess capital stock still carried after merger with other companies.

[21] Confirmed for more recent years by interviews.

2,46. This compares very favourably to the manufacturing average for that year of 1,79, but not as well to the 4,35 total non-motor engineering or 3,7 for total engineering. It was about on par with the motor industry total of 2,8.

c) Summary

From the foregoing several key points should be noted:

- The HED industry is a smallish contributor to South African GDP. Its role in the broader economy is as a poor second cousin to the auto industry, the major consumer durables industry.
- Output, value added, employment and capital stock figures are consistent in placing the HED industry at about 0,5% of South African manufacturing output. The industry contributes 5-6% of non-auto engineering sector totals and 3-4% of total engineering. This makes it a small but significant part of the broader engineering industry.
- The rate of value added in the HED manufacturing industry is lower than for the economy in general or for the engineering and automotive industries. This implies a relatively higher proportion of imported inputs used in local manufacture – and a proportionately higher 'cost per job'.
- Employment and capital stock in the HED industry are small and declining. The industry is relatively labour intensive — but probably should not be, given international trends towards heavy use of automation in this industry. The HED industry will almost certainly not be a source of new manufacturing employment.

D. South African HED Firms[22]

1. Manufacturing Firms

The following firms were engaged in the manufacture, importation, and distribution of HEDs in South Africa at the time of writing.

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[22] Numerous imported brands of HEDs are available locally and that only firms involved in local *manufacture* are listed here. It should be noted someplace (here will do) that several of these firms declined to have anything to do with the Industrial Strategy Project and contributed nothing voluntarily to this report. In general the official attitude of those companies declining to participate was that the information sought by the ISP was too sensitive to disclose. This may have been the case for some types of information, but in general this excuse is disingenuous. My impression was that many of these firms are strongly conservative, if paternalistic, in their management orientation and business practices, and did not relish the thought of trade union-connected researchers asking what were more than once described as 'highly pertinent' questions. As one executive put it, 'what does COSATU want with industrial policy? That's none of their business. Their role is to represent their members, not to meddle in management issues'. Unfortunately, COSATU's members are only too interested in industrial policy, as their jobs may depend on it.

(1) Amalgamated Appliance Company

Amalgamated Appliance Company (AMAP) was formed in 1991 through the merger of the small appliance interests of Tedelex and South African Breweries subsidiary Lion Appliance, who now each hold 50%. Its head offices are in Johannesburg, while its manufacturing plant is in New Germany in Pietermaritzburg. AMAP produces and imports a variety of small appliances under the names of HAZ, Salton, Tedelex, Lion, and others. It is the undisputed market leader in its area.

(2) Barlows Appliance

Barlows Appliance Company (BAC), located in Kew, Johannesburg, is 100% owned by Barlows Manufacturing Company, itself a holding company controlled by Barlow-Rand Ltd., one of the country's top conglomerates. BAC produces white goods products under the brand-names Fuchsware (stoves), Kelvinator (washers, fridges), Kelvinator Knight, Frigidaire, and Leonard (washers, dryers), National (microwaves) and Barlow (fridges). Barlows is one of the two biggest white goods manufacturers in South Africa, along with TEK Corporation.

(3) Hoover

Hoover's East London plant produces Hoover laundry products and small floor care appliances. Although it has the largest share of the laundry product market, this is only so by plurality. It has the dubious distinction of having retrenched its entire workforce in East London several years ago, only to re-hire non-unionised unemployed local whites. Hoover has also recently taken a 50% share in a refrigeration plant in Swaziland.

(4) KIC

KIC was until late 1992 owned by Picardi Appliance, which was in turn owned by the Pickard group under Jan Pickard. It was recently sold to Altron subsidiary Powertech. Its plants in East London and Isitebe, Natal produce Whirlpool (washers, dryers, fridges), Hitachi (washers, dryers), Indesit (washers, dryers, fridges), and KIC (fridges). Its KIC fridges are probably the most competitive white goods products manufactured in South Africa. It has experimented in audio and television, but withdrew hastily, now only importing. Its ex-holding company Picapli reported turnover of R14 361 000 in 1990, registering losses of R393m. Its fixed asset base in that year was R24 236 000. The bulk of this was to do with white goods operations.

(5) National Panasonic

National Panasonic, with plants in Johannesburg and Cape Town and head offices in Johannesburg, is another wholly-owned subsidiary of Barlows Manufacturing Company. It imports and manufactures consumer electronics products under the names National Panasonic (televisions, hi-fi) and Goldstar (hi-fi). Together with BAC it forms the Barlows Consumer Electric Products Group.

(6) Nu-World Industries

Nu-World produces small appliances under the Ideal name from a plant and head office in Johannesburg. It is the second largest South African manufacturer of small appliances after AMAP.

(7) SA Phillips

SA Phillips is 100%-owned by Phillips Netherlands, making it an unusual firm in the HED industry. Its plant in Johannesburg produces Phillips products (small appliances, laundry products, TV and audio, and personal care). It is a major importer as well as manufacturer, and in 1992 announced its intention to withdraw from television production altogether.

(8) Tedelex

Tedelex is a 96%-owned subsidiary of Malbak, the industrial conglomerate. It manufactures and imports a range of products, including Sony, Blaupunkt and Tedelex (television and audio). Until recently they also manufactured small appliances under the HAZ and Tedelex names, and sewing machines under Empisal. This company has been under pressure to delist from the JSE, which Malbak announced intentions to do in 1992. Its main television plant of interest was in Atlantis until its closing in 1992, with head offices in Johannesburg.

(9) TEK Corporation

TEK Corporation (TEK), with plants in Durban, East London, and Ezekheni, and head offices in Johannesburg, is a wholly-owned subsidiary of SANKORP, which is the industrial holding company of SANLAM, the insurance giant. It produces and imports white goods and consumer electronics products under the brand-names Ocean (fridges), Defy (stoves and laundry products), Telefunken (TV), Pioneer (audio), and Airco (commercial air conditioning equipment). TEK's 1992 fixed asset base was R59 151 000. Its turnover was R667 469 000, earning R25 109 000 pre-tax, but losing R1 943 000 after losses associated with its sale of subsidiary TEK Industrials are included. Its accumulated losses at the end of 1992 amounted to R138 587 000 — 20% of turnover.

(10) Univa

Univa is involved in the production of kitchen and laundry products under the names Univa (gas stoves) and Ariston (washers, dryers, and fridges).

(11) Others

In addition, there are several smaller firms active in the television branch, including Etron, Rowa, Universal, and Triad. These firms are generally recent entrants which have taken advantage of changing trade regulations to assemble SKD (semi knocked-down) kits from import (see Chapter Five).

2. Market Shares and Structure

The market shares enjoyed by the major firms are jealously guarded secrets. Nevertheless, some estimates can be given.[23]

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[23] Based on the confidential document used in Chapter One.

a) White Goods

Market share differs widely amongst various products, and is generally divided amongst TEK Corporation, Barlows Appliance, KIC Ltd., Hoover, and Univa. The information here is a partial estimate, based *only* on urban African-language ('black') households.[24] The general picture is of a dominance by local brands in cooking products, but import domination in refrigeration and laundry products.[25]

Cooking Products:

TEK Corporation (particularly its Defy brand) dominates here with 38% of the market for electric free-standing stoves, followed by Barlows at 23% and Univa at 11%.[26] However, TEK's share of this market has slipped considerably since 1989, when it had 43% of the market, as opposed to Barlows 16%. The future preferences for such products expressed by such buyers, however, remains dominated by TEK at 25% to Barlows 17%.

Refrigeration:

Imported products (mainly Italian) fare much better here, with 48% of the urban black market for single-door fridges, followed by Barlows at 27%, KIC at 10%, and TEK at 8%. For double-door fridges, imports also dominate at 33% of this market, with Barlow second (22%), KIC third (20%), and TEK fourth (18%). In terms of general future preference, however, Barlows dominates with 30%, followed by TEK at 20% and KIC at 10%. Despite this, TEK has gained ground from other competitors in refrigeration products in the last four years.

Laundry:

In the case of *laundry products*, imports again dominate with 37% of the urban black market, followed by Barlows at 18%, Hoover at 13%, and TEK, KIC, and Phillips at 6-9% each.

By Firm:

Amongst local manufacturers, the overall market is dominated by TEK and Barlows, followed by KIC. This dominance is more balanced for Barlows, however, since it appears to have a firm footing in all three major product areas. TEK, on the other hand, is overwhelmingly dominant in cooking products, but trails in refrigeration and laundry. KIC is a firm third overall, with second-place in refrigeration products, in which it is growing strongly. Smaller brands such as Univa, Hoover, and Phillips remain niche brands in particular product categories, such as Hoover's plurality in laundry products.

Given this situation and the similarity in employment levels (TEK and Barlows each employ about 2 000, whilst KIC and Hoover employs 1 000), it seems that *the local white goods market is essentially a competitive oligopoly.* That it is in fact intensely competitive is probably due to a combination of the retail sector's diversity and competitiveness and the

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[24] This limitation is necessitated by lack of more complete information, but is perhaps mitigated by the fact that this is the principal potential domestic market.

[25] It should be borne in mind, however, that this is an historical situation, since the figures used record household ownership levels rather than sales.

[26] It should be noted that these figures are based on ownership rather than actual sales.

role of imported products, which, although not especially preferred by retailers,[27] still serve to keep local manufacturers honest through low prices.

b) Small Appliances

The situation with respect to small appliances is confused by the recent merger of HAZ, Tedelex Small Appliance, and Lion Appliance into Amalgamated Appliance. However, information compiled and supplied by this company gives a much more reliable picture of market share than in the case of white goods.[28]

Cooking Products:

In the case of *frypans*, AMAP brands dominate with nearly 97% of the market. It also dominates the fast-growing *hotplate* market with 40%, followed by Nu-World Industries (Ideal brand) with 31,5% and Estia with 17%. *Jug kettles* are dominated by AMAP brands with 69%, followed by Nu-World at 11,6% and a others with 5-8% shares. Finally, *toasters* are dominated by AMAP with 35%, followed by AIM at 12%, Nu-World at 11%, Phillips and Novex at 7-8%, and others sharing 25% of the market.

Laundry Products:

Dry irons (a small market) are dominated by Nu-World with 31%, followed by AMAP at 29%, Phillips at 12%, and others with 3-8%. *Steam irons* are again dominated by AMAP with 47% of the market, followed by Nu-World at 27,5%, Phillips at 8,5% and others with between them 17%.

By Firm:

AMAP clearly dominates the small appliance market, although sometimes with only a plurality. This is logical given that it has integrated the production of the three most popular brand ranges but retained the brand-names, which are generally vital in the HED industry. It should not be concluded, however, that AMAP is heading for monopoly. Firstly, its market share has slipped considerably in the last two years, reflecting difficulties in integrating the three previous companies. Secondly, its dominance is often as the largest single supplier of a specific product amongst many others. Finally, by its own admission it is under severe threat from very cheap imports from the Far East.[29] As is the case with white goods, internal competition seems relatively healthy, whilst imports seem to serve as a strong disincentive to complacency.

c) Consumer Electronics

Audio:

The situation with respect to audio products is unclear, since by far the bulk of such goods are imported. In any case there appears to be healthy competition at retail level, usually based on Japanese brand-name preference and price.

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27 See Seeraj Mohammed's ISP paper on HED retailing.

28 Unlike those for white goods, these figures are for actual sales in financial year 1992.

29 Indeed, many of its own high-end products come from this source.

Video:

In the case of *televisions*, there is a long saga, which will be told in Chapter Five. Initially, four manufacturers were licensed by the government. TEK, Barlows, Phillips, and Tedelex dominated the local television market with nearly identical shares for over twenty years. In 1991 Tedelex led the urban black market with 25%, followed by TEK at 24%, National Panasonic at 17%, and Phillips at 15%.

By Firm:

All of this has changed radically. In the late 1980s and early 90s, new entrants like Triad, Rowa, and Etron responded to the abolition of the licensing system by producing low-cost monochrome televisions (usually Korean), later entering the colour market as well. This cut into the Big Four's share of the low-end, from which they began to withdraw.

Subsequently a loophole in the tariff regulations, which allowed duty-free importation of SKD (semi-knocked down) kits,[30] encouraged the emergence of a variety of 'screwdriver' assemblers who were able to sell TVs so cheaply that the established industry was hurt very badly. Industry sources estimate that the Big Four lost nearly 50% of their sales in 1991/2 to the newcomers — and that in a recessionary period.[31]

In general, the domestic television industry seems to be quite competitive. This is not the problem with this branch, however, and Chapter Four will discuss in detail the more important external competitive situation.

E. Institutional Structure

1. Firm Activities and Ownership

The major firms in the South African HED industry are essentially multi-divisional corporations. Each contains a trading arm, an import arm, and a manufacturing arm. BAC and TEK also have financial divisions which help to provide hire-purchase finance for their products.

TEK, Tedelex, KIC, and Phillips are all involved in both white goods and consumer electronics manufacture and distribution by means of separate divisions. Barlows Appliance, KIC, Hoover, and Univa concentrate on domestic appliances only. AMAP and Nu-World industries are involved only in small appliances, whilst National Panasonic is involved in both audio and video consumer electronics. The remainder of the firms listed above are producers of televisions only. TEK also has an air-conditioning division, as does Barlow-linked firm National.

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[30] Essentially a tube, chassis, and tuner already manufactured and requiring only a screwdriver and tester to assemble.

[31] On the prompting of the Radio and Television Manufacturer's Association of South Africa, however, Customs vigilance has apparently uncovered numerous tariff violations, leading to multi-million Rand fines against some of these firms. The SKD loophole was closed towards the end of 1992.

Ownership of these companies is uniformly dominated by major conglomerates or their industrial holding companies. TEK, for example, is 100% owned by SANKORP, SANLAM's industrial arm. Barlows Appliance, National Panasonic, and National Air-conditioning were all 100% or majority Barlow-Rand-owned at the time of writing. Tedelex is 96% owned by Malbak, although the latter has recently made an offer to buy out minority shareholders. KIC was 100% owned by Picardi Appliances, which as we have seen sold majority shareholding to Altech subsidiary Powertech in 1992. Amalgamated Appliance is the only major firm with significant multiple ownership, with 50% of shares held by SA Breweries though Lion Match and 50% held by Tedelex.

In general, then, the HED industry is heavily dominated by South Africa's industrial conglomerates. Small and medium-sized enterprises (SMEs) do not play a significant role in HED manufacture — but are active in component supply, subcontracting fabrication and assembly, and in appliance repair and re-manufacture (often informally). This domination by large firms is not an accident. It reflects a number of factors which taken together mitigate against effective participation by SMEs:

- The HED industry's history (and perhaps future) as a strategic area of import-substitution and therefore manufacturing diversification have made it an attractive arena for strategic manufacturing investment.
- The high capital-costs associated with mass production of complex engineering products, at least in the cases of white goods and small appliances, attracts large firms with significant financial resources.
- Government licensing requirements and historical brand loyalties on the part of the white population have imposed a need for 'clout' to obtain overseas licensing and technology partners and to obtain favourable terms for component imports. This has required the size and sophistication of larger firms.
- The licensing system imposed on the television branch by government in the 70s, stipulated conditions requiring extensive financial resources.
- The HED retail market involves extensive use of extended credit terms as a competitive weapon, which requires financial means on the part of manufacturers and wholesalers.

Chapters Five and Six will discuss the effect of conglomerate ownership of firms in this industry in more detail. Here it can be said that although some executives have expressed a feeling that an overly financial, end-of-quarter approach to assessment by principals is typical, this is not uniform. In some cases, such as AMAP, conglomerate ownership (in this case by SAB) has provided both financial breathing space and freedom to undertake essential restructuring of activities at manufacturing level. A great deal depends on the overall health of the conglomerate in question, and its 'culture'.

2. Employers' Associations

The Radio and Television Manufacturer's (RTMA) and Domestic Appliance Manufacturer's Associations (DAMSA) are the principal employer bodies in the industry. The South Africa Small Appliance Manufacturers' Association (SAMA) represents that

industry. All seem to be attuned mainly to information gathering[32] and lobbying activities. The RTMA in particular has been very active in negotiating with the BTI/BTT on tariffs affecting the television branch. DAMSA also has an active past in this respect, but has not had such a serpentine tariff history with which to contend. To my knowledge there have been no strategic research initiatives or activities undertaken by either organisation. Neither organisation attempts to analyse global developments in its industry and strategise in that light, although individual firms appear to be very well informed of global developments.

Both the RTMA and DAMSA are affiliated to SEIFSA[33]and participate in wage negotiations conducted by the latter through the engineering industry industrial council. Several executives, however, have expressed a desire for an industry-specific negotiating forum which would take into account the specific situation of the HED industry, which is reliant on the domestic consumer market, unlike many powerful SEIFSA members who produce for the mining industry. A tri-partite forum incorporating employers, unions, and government similar to that recently founded for the motor industry finds great favour in the industry.

3. Unions and the Workforce[34]

The HED industry is organised by a number of unions, including the National Union of Metalworkers of South Africa (NUMSA), the Metal and Engineering Worker's Association (MEWA), *Yster en Staal*, and the Radio and Television Worker's Association (RTWA). By far the majority of unionised employees, at least in the Witwatersrand area, are members of NUMSA. NUMSA representation is established at most major plants operated by Barlows, TEK, Tedelex, and Phillips. Cape factories such as Tedelex Atlantis and National Panasonic Parow, however, have a large proportion of non-unionised employees (50-60%), as well as relatively stronger representation by conservative organisations such as RTWA. Several plants visited in Natal also had significant numbers of MEWA members.

As with most South African industries, unions seem to have played no especial role in the strategic development of the HED industry, as in Australia or New Zealand (see Chapter Five). The general atmosphere within the industry is indeed distinctly cool towards unionised workers. Although interviewees were careful to present a paternalistic picture of relations with their employees, most expressed feelings ranging from frustration to outright hostility when asked about the specific role of worker organisation in their plants. Many also expressed an open desire to minimise employment through technology to reduce the 'hassle factor' of dealing with unions.

Most plants visited utilised some sort of in-house system of worker representation such as works councils, training groups, 'green areas', and the like. For the most part, these seemed to be regarded as motivational 'talking shops' rather than genuine attempts at worker involvement. Managers were nearly universal in their estimation that their workers were not capable of genuine productive participation in their workplaces. This was understood as a function of educational levels.

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[32] Alas, not information publishing!

[33] Steel and Engineering Industries Federation of South Africa.

[34] Chapters Five and Six will discuss the role of unions and worker organisation, both actual and potential, in more detail.

F. Linkages and Externalities

So far we have considered the HED industry in quantitative and descriptive terms: how big it is, how much it produces, who its main players are, and how it is structured. Now we will turn to its qualitative linkages to the rest of the South African economy.

1. Linkages To Other Sectors

As a 'filiere', the HED industry is not particularly complicated: it draws on several other industries for essential inputs, including sheet metals, granulated plastics, chemicals, electronic components, and light engineering products such as motors, heating elements, cabling, switchgear, transformers, and the like. It is not a major consumer of such products in terms of the overall economy or manufacturing sector, but is like the motor industry in that it requires them on a continuous basis, in small- to medium batches. In this respect it is unlike the 'jobbing' part of the engineering sector.

As will be argued in Chapters Five and Six, there are no problems with this filiere which can be attributed to the nature of the HED industry as such. Rather, the problems facing South African HED manufacturers — high domestic raw materials and components prices, lack of adequately trained labour, lack of technological capacity, and weak demand — are identical to those faced by similar South African industries. In this respect the HED industry can best benefit from a coherent set of general industrial policies which addresses these economy-wide problems, rather than specific measures for the industry itself.

a) Input Requirements

Assuming an average materials component of 75% of ex-factory prices, the total materials requirement of the HED industry was roughly R1,2bn in 1992.[35] In the absence of aggregate industry statistics, the variety of products involved precludes an accurate estimation of the total import content of this. Assuming an unchanged proportion from the 1985 Census, when it was roughly 45%, the figure would be R540m. This leaves R660m locally-produced inputs. This in turn was about 0,5% of 1992's total domestic production of intermediate inputs of R130bn. This is in line with the proportional output estimates presented above.

A large proportion by value of inputs to the HED industry is thus imported, although this varies between branches. As a general rule, local content is higher the less complex and more 'materials-based' the product. Thus in television and washing machine production import content is high, but in the small appliance branch, which manufactures mainly simple kettles, irons, frypans, and the like, local purchases are dominant. The single most important import item[36] is television picture tubes, which are produced profitably only on a very large scale (1m+). Refrigerator compressors are another scale-intensive component sourced from overseas, principally Southeast Asia.

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[35] This is a very conservative estimate, and excludes depreciation charges, which must be considered a cost to the economy when based on imported capital goods.

[36] See Chapter Four.

From early 1992, when import duties were abolished, the bulk of electronic componentry for television and audio manufacturing has been imported. In many other cases, such as power transformers and switchgear, many manufacturers are leaning towards importation because of cost. In the absence of a sudden transformation of the cost structures facing South African component manufacturers, this trend is likely to continue and would accelerate dramatically in the event of a widespread tariff liberalisation. As we shall see, the basic problem areas for the HED industry on the local *material* input side are

1. The cost of raw materials, particularly steel and plastics.
2. The cost, quality, and reliability of locally-produced components.
3. The availability of quality capital goods and support services.

As will be argued below, protection of uncompetitive upstream industries is a major barrier to competitiveness in the HED industry. Yet reliance on imported inputs would place manufacturers at risk of exchange rate fluctuations and reduce the amount of local value added. This quandary is most basic to the question of industrial policy towards this industry.

b) Outputs

The HED industry sells to furniture and department stores consisting of (i) large discount chains such as Dions and Pick n' Pay Hypermarkets, (ii) medium-sized speciality chains such as Morkels or the Rusfurn Group, and (ii) small independently-owned local shops. In general the HED industry does not sell directly to final consumers.

The principal issue to be addressed in respect of the downstream side of the HED filiere is the relationship between HED manufacturing *plants* and the retail sector. HED plants do not sell directly to retailers, as is common in other countries, but generally sell all of their output to their holding company, which then markets the product through a specialised division. This structure seems often to result in a lack of effective linkages between marketing, product design, and industrial engineering functions within HED firms. As we have seen, it also tends to prevent otherwise willing factory managers from entering into production of 'no-name' products for sale directly ex-plant to cash discount chains.

c) Other Firms and Small Businesses

Anecdotal evidence from interviewees suggests that sub-contracting and out-work are fairly common in the industry. For example, at AMAP in New Germany (Natal), the majority of plastic and metal parts are manufactured in rough or billet form by small local suppliers and delivered every other day. They are then finished and assembled in the factory. Similarly, at National Panasonic's Parow TV factory, production of wooden and plastic cabinets has been farmed out to an ex-employee. TEK Electronics in East London similarly contracts cabinetry — unlike Tedelex' Atlantis factory, whose cabinet-makers were the only qualified production artisans in the plant. Unfortunately it is impossible to quantify this for the industry as a whole.

Another common practice is the employment of casuals. AMAP in New Germany employs a large number of casual workers who are hired on a short-term basis to cope with peak

periods. Other firms appear to engage in this practice, as well, although again a specific quantification is not possible.[37]

The value of repair and maintenance activities associated with HEDs is impossible to estimate for the economy as a whole, but probably employs several thousand people nation-wide. A significant and interesting factor in urban areas is the extent of refurbishment of white goods by backyard shops. This probably helps to depress sales of new products, but forms an integral part of the 'informal' economy in many areas.

2. Technology Generation

All of the South African firms visited in the course of research have major technology agreements with foreign firms, generally based in Europe or the USA. In most cases this involves the transfer of product designs and engineering processes to the South African firm. In some cases it involves the exchange of personnel; in others it involves the actual transfer of second-hand machinery and equipment; in yet others it involves major sourcing agreements centring on proprietary components such as integrated circuits (ICs), or offering discounts on bulk purchase of components. In all cases it involves the licensing of the all-important brand-name, discussed at the beginning of this chapter.

No local firm was able to give figures for the number of employees involved in research and development (R&D), or the proportion of turnover or profits going to this purpose. Nearly all were agreed, however, that the amounts are very small, and that the South African HED industry is a fundamentally a technology consumer. In some cases (such as the television industry) this is not cause for concern, since it would be pointless to enter into competition with overseas firms whose main source of value added is their ability to design and introduce new products. South Africa lacks the skill and technological basis for this type of competition at present.

Yet in other cases this technological dependence is a problem, for it prevents local firms from entering niche markets, particularly in the third world, with its own products, free from limitations on export or royalty obligations. But more importantly, it has discouraged the development of local production engineering capability. As Chapter Five will argue, this capacity has been fundamental to the success of some white goods firms elsewhere in the world, who have emerged from markets smaller than South Africa's to become major exporters precisely through their expertise at production engineering.

3. Skills Generation

Unfortunately, no comprehensive skills audit of the HED industry was possible within the context of the ISP.[38] There is little evidence of significant pre-employment skills requirements in the industry. Factories visited have a very low proportion of officially skilled workers or artisans — 1-2 per plant, usually electricians and/or turners and fitters. Unskilled workers are generally employed for fabrication, assembly, testing, and packaging

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[37] This issue was not easy to pursue do to the sensitivity of the issue to interviewees.

[38] And would be a logical next step in this research.

tasks, and are trained for firm-specific applications. Workers do not generally function on a team basis in which they would acquire a variety of skills. Instead, they tend to remain at specialised, repetitive tasks.

This may *result* in acquisition of significant skills, as in the TV branch, where some workers learn to use a variety of electronic assembly and testing equipment.[39] Most production workers are officially unskilled or semi-skilled, and it is likely that their tacit skills obtained on the job are the bedrock of the industry's skill structure.

It should be noted that this emphasis on minimal and specialised skilling is not intrinsic to the HED industry. In several plants visited in New Zealand and Australia, management and unions were in varying stages of a process of skills-recognition and upgrading which sought to identify and categorise the skills used by workers in their tasks, and to encourage workers to develop and use a variety of skills within the framework of work teams. In general it was found that this process led not to a multiplication of machines workers could mind, but to a more holistic approach to skill, encompassing planning, organisation, monitoring, assessment, and maintenance as well as work more narrowly defined. This approach has been spectacularly successful in some cases. The pertinent issue is thus not the labour process associated with HED manufacture, but the management and work organisation practices develop and implemented in individual firms. We will return to this issue below.

G. Key Problems In the HED Industry

It is apparent from the foregoing that the HED manufacturing industry is not a powerhouse. In aggregate terms its contribution to manufacturing output, value added, employment, and capital stock has been relatively minor. It is generally very materials-intensive, and significantly import-intensive. It is not a technology generator, and does not appear to have developed or imparted significant skills. Its role in supplying a part of consumer demand for a significant group of products, however, has been more considerable. The issue to be considered in subsequent chapters is whether on balance this has been done efficiently and effectively, and whether it could be done better.

In this final section of Chapter Two we wish to identify those specific problems faced by the HED industry which may prevent it from becoming more than it is now.

1. Current Problems and Prospects

a) Poor Profitability

Historically, profits have been strong in some branches of the HED industry, such as television manufacture. Profitability has also been reasonable in the white goods and small appliances branches, although it has stagnated since the mid-1980s. Profitability, of course,

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[39] Certainly the government's hope that the TV branch, for its part, would become a *major* skills-generating area for the economy has not been at all successful. As we shall see, without local product design, it could not be otherwise.

must be considered in the light of inflated rates of effective protection,[40] and in some cases — particularly television — has only been possible as a result of this.

(1) Net Profits

Net profits in the broad industrial sectors including HED producers have been closely linked to fluctuations in domestic demand and the exchange rate. In the sector including white goods manufacturers, ISIC 3829 (non-electrical machinery), profits have tended to fall when the Rand is strong and to rise when it is weak.[41] This sensitivity to the exchange rate is due, as we have seen, to increased importation and higher input costs when the Rand is strong. In ISIC 3823 (Radio, TV, and Communications), however, profits have tended to rise during upswings and fall sharply during downswings. Profits in ISIC 3833 (Small Appliances) are also pro-cyclical. This is because of the relatively high import duties in favour of the former and relatively low import penetration in the latter.

(2) Profit Ratios

Profit as a percentage of value added in these industrial sectors has been poorest in ISIC 3829, where effective protection is lowest and imports strong during periods of a strong Rand. In ISIC 3833, profits as a percentage of value added have experienced a trend fall from over 25% in the early 80s to about 10% in the latter part of the decade. ISIC 3832, however, has seen very high average rates of profit as a percentage of value added — up to 38%. As the BTI has pointed out, this is to be expected in a heavily protected industry with a limited number of entrants (BTI, 1989). Very high *effective* rates of protection (see below) enhance this effect.

Profit as a percentage of fixed capital stock has again been lowest in ISIC 3929, averaging under 10% with a period of losses during the mid-80s. They have been much higher in ISIC 3833, between 10% and 40%, although the trend is downward. But they have been highest in ISIC 3832 — up to 55% — driven largely by a combination of heavy protection, limited market entry, and very low capital requirements.

Profit as a percentage of turnover has followed a similar trend, reaching 14% in ISIC 3832 in the early 1980s. It has remained in the 2-10% range for ISIC 3833 — the high volume, low margin small appliance industry — and under 5% for ISIC 3829.

(3) Profitability

HED industry profits were very poor during the period of this study, for reasons discussed in Chapter One. The result was very poor performance from the industry's major players. To take just a few examples:

- Tedelex reported a drop in turnover of 11% in the first half of 1992. Operating income fell by 63,7% from R22,5m to R8,3m during the same period. The group announced on 8 October 1992 that it was to be de-listed by 96% shareholder Malbak, having suffered an attributable loss of R19,5m on a turnover of R412,8m, which was itself down by

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[40] See Chapter Four.

[41] Although this has been moderated by the coincidence of a weak Rand and weak economy.

18% from the previous year (*Business Day*, 27 March 1992; *Cape Times*, 9 October, 1992). Tedelex' published financial statements also show that, whilst it made a net profit in 1990 and 1991, this was at a rate of 4,3% and 5% of turnover, respectively. Net profit represented a return of only 7% and 9% on capital employed in those years.

- Picardi Appliances, which owned domestic refrigeration leader KIC, reported a 24% decline in operating profit in 1992. It abandoned the manufacture of televisions and audio products. Picapli sold KIC's manufacturing wing in that year (*Argus*, 22 October, 1992).
- One firm interviewed, with interests in white goods and consumer electronics, reported accumulated losses for 1992 almost triple that year's net operating income. This was its third straight year of net losses.

The situation in 1992-93 was very bleak indeed. It should be noted that major HED firms suffered both as importers *and* as manufacturers, in contrast to earlier periods. In the early to mid-1980s poor manufacturing profits were mitigated by higher margins on imported products (interview sources).

b) Lack of Investment

In the absence of comprehensive financial statements, investment details are scanty. In real terms, the value of fixed capital stock has risen most rapidly in ISIC 3829. It has also risen steadily in ISIC 3832, although substantial parastatal investment in telecommunications distorts this figure. Reasonably accurate figures for the net expansion of fixed capital stock are available only for the small appliance industry (CEAS, 1992). From 1980-1990, this industry's net investment *declined* at an annual average rate of 2,3%, compared to an average manufacturing investment growth of 2,0%.

In common with other South African manufacturing industries (Gelb, 1990), overall rates of depreciation have risen since the early 1970s to between 12% and 20% p.a. in the early 1990s. Information gleaned from interview sources reports shows that in white goods and consumer electronics there has indeed been significant disinvestment. Figures supplied by one firm showed its fixed capital stock declining by almost 13% in 1990, by over 10% in 1991, and by 15,5% in 1992. Tedelex' financial statement for 1991 shows that its fixed capital stock declined by over 21% and 17% in 1990 and 1991, respectively. Interviewees admitted that there have been no major investments into *productive* activities in recent years and that none are planned.

Clearly, for existing shareholders there is little point in investing in the HED industry under the current circumstances. Only an exceptionally long-term view, coupled with a powerful stomach and deep pockets, could prompt new investment. Several factors currently act as powerful disincentives:

1. Low profitability and extremely poor returns on existing investment, limiting cash flow and expected returns. This is the basic short-term obstacle.
2. Lack of certainty with regard to the tariff structure and the electrification process is a medium-term obstacle. This is particularly so in the television branch, where debate over the government's structural adjustment package of 1990/91 continues. Although the problem is less acute in the white goods branch, the prospect of tariff adjustment

and South Africa's status under the new General Agreement of Tariff and Trade is a strong disincentive. In the small appliance branch, increased competition from south Chinese plants has had a similar effect. And in all three branches, the unpredictability of the Board of Tariffs and Trade has and continues to act as a disincentive to medium-term investment planning.

3. Uncertainty at the political situation effectively put all investment thinking on hold at the beginning of the 1990s. Even the prospect of a new government dispensation did not change this, as most interviewees indicated that they would adopt a 'wait and see' attitude, seeking practical results before committing to new investment.

c) Declining Employment Prospects

According to the 1985 manufacturing census, the HED industry in 1993 employed 25% fewer persons than it did in the former year, when it employed over 20 000 persons. This is almost certainly due to the difficult market situation faced by these firms, and to their corresponding lack of investment in new production capacity. One firm interviewed has seen employment fall by an average of 10-12% per year over the last four years, and undertook further major retrenchments in 1993.

As we have seen, however, there would seem to be little prospect for employment creation even if things should pick up. This is liable to be a disappointment to those who have hoped that electrification would result in employment growth in the HED industry. *Indeed, firms almost universally agreed that a doubling of capacity with new investment would not involve significant job creation.* New investment would almost certainly involve automation and be significantly labour-saving as compared to present techniques.

This is borne out by research in New Zealand and Australia, where employment levels are extremely low compared to South African firms at similar output levels, as a result of advanced automation techniques employed to enhance competitiveness. For example, one New Zealand-based firm operating in Queensland employs 115 persons to produce 250 refrigerators per day. This works out to approximately 3,7 person-hours per unit. At one of the major refrigeration plants in South Africa, one refrigerator requires 12,5 person-hours. Where unit labour productivity is comparable to overseas plants, as in the television branch, employment levels are so low as to render the effect of even major expansion of output relatively insignificant in macroeconomic terms.

It seems clear that whatever its other attractions, *the HED industry will not be a significant employment creator in itself* — unless it either (i) becomes a major exporter, or (ii) embarks on a path of labour-intensive production which in all likelihood would require continuing protection to sustain.

2. Structural Problems

We have painted a fairly gloomy picture of the HED industry as (i) in serious short-term difficulty and (ii) unlikely to be a major engine of employment growth in the future even should times improve. To summarise and anticipate later chapters, let us consider three basic problems with the industry:

1. **Problem One**: it is internationally uncompetitive, cannot survive without relatively high rates of protection, and is therefore unable to export.
2. **Problem Two**: its products are increasingly too expensive for the local mass market.
3. **Problem Three**: its ability to survive continuously recessionary conditions and unstable in personal disposable incomes is in question.

a) Lack of Competitiveness

There are four main reasons for the relative uncompetitiveness and high cost of the South African HED industry:

1. *Firstly*, world markets for HEDs are extraordinarily competitive, and the trend is towards larger firms and greater vertical integration (Chapter Three). *South African HED exporters are unlikely to penetrate markets already served by sophisticated world leaders in the industry who utilise — who generate — the latest production technology.* Developed country markets for HEDs are essentially replacement markets, and competition is for market share. Exports or local sourcing of products to overseas principals would require a significant over-compensation of the current cost differentials between South African goods and overseas products, and a way to eliminate the effect of higher South African inflation rates. This will not happen unless domestic firms enjoy significant improvements in throughput and turnover based on an expanding domestic market.
2. A *second* major reason for lack of cost competitiveness is that *the HED industry does not enjoy economies of scale sufficient to achieve competitive unit costs.* A good example from white goods is EFS stoves. A single plant in Italy is said to operate efficiently at 200 000 units per annum. This is twice the current South African *market.* As a result, local production overheads are up to five times higher than for comparable overseas plants (DAMSA, 1991). In the case of televisions, South African firms are nowhere near the minimum of 100 000 units p.a. per line — nor could they be, given a total domestic market of +/- 450 000 units per annum and numerous producers.
3. *Thirdly, local component and raw materials costs are significantly higher, and quality significantly poorer, than for overseas competitors.* This is due to problems which are essentially identical to that faced by the manufacturing industry more generally: protection afforded to producers of basic commodities such as sheet metal and polypropylene, market structures which allow producers to dictate prices, and domestic inflation. This serves as a major obstacle to competitiveness and affordability in an industry which is very materials-intensive. In many ways a turnaround of the HED industry must involve either a thriving component industry or liberalised imports of such items. Otherwise a basic prerequisite to competitiveness is lacking.
4. *Finally*, it will be argued below that greater flexibility and automation in manufacturing processes could both help to overcome scale problems and to encourage exports. *The South African HED industry's inability or failure to adopt world-class manufacturing techniques has prevented it from escaping from the trap it has been in since mid-century: mass-production methods in a small, varied market.* But it should be borne in mind that even with product flexibility, sophisticated capital equipment must still

produce sufficient volumes to amortise its high cost. Local manufacturers do not see current market prospects as justifying such a risky venture. This implies that a general improvement in market prospects and industry turnover will be required as a precondition to encourage it to undertake needed restructuring and investment.

In sum, to become internationally cost competitive and affordable to the mass domestic market, the HED industry needs to (i) reduce its input costs, (ii) increase its throughput, and (iii) invest in more advanced technology which will allow continued cost improvements and better quality. But none of this is seems likely to happen at present.

b) A Supply-Side Answer?

This leaves the third problem, domestic recession. As we have seen, the HED industry's short-term problem is consumers' inability to afford its products. By definition, this problem arises out of a combination of consumers who lack disposable income and producers who cannot reduce the real cost of their products to compensate.

It could be argued that since the former problem cannot be solved directly, it is up to the HED manufacturing industry to solve the latter — and that increased investment and efficiency in a manufacturing industry such as this is what is needed to raise real incomes in any case. This is true. But it is pointless to take a 'progressive' supply-side approach and argue that lower product costs through technology and aggressive productivity improvements is *the* answer. Indeed, this is well recognised by management as a necessary part of the path to international competitiveness. The problem is that in a capitalist economy, owners of capital do not invest under conditions of severe recession, political uncertainty, and high risk. Resolution of these macroeconomic and socio-political problems is a prerequisite to meaningful restructuring of this consumer-oriented industry.

3. Can the HED Industry Survive Significant Environmental Changes?

a) Electrification and Mass Housing — a Panacaea?

What would happen if everything suddenly turned around, as some hope will result from a demand-led recovery package? Could the HED industry become a source of demand led job growth, as many hope? Reasonably reliable projections of market prospects are difficult to obtain, but it would appear that the HED industry's own projections are not as sanguine as those of supporters of mass housing and electrification programmes.

The problem is that more than just demand-led growth may be required to resuscitate the HED industry. For with the exception of the small appliance branch, *the HED industry is at present operating at around 30% capacity (calculated on one shift). It could easily double or even treble output.* Manufacturers believe that this is also true of component suppliers. Furthermore, *minimal investments* (example: R4m for a major local television plant) *are needed to double present capacity (as opposed to output).* Adding another shift would perhaps double even that. This implies is that in capacity terms the HED industry is well-

placed to handle any foreseeable increase in domestic demand, even that based on mass housing and electrification. Current projections are for 650 000 — 1 000 000 new hook-ups over the next five years (*Cape Times*, Tuesday March 23, 1993). This works out to a worst case of 130 000 and a best case of 200 000 new hook-ups per annum. In Chapter One we saw that the rate of appliance uptake in most cases (not all) exceeded the rate of electrification amongst urban black households. Yet when this is considered against the total annual market for each appliance, it emerges that the total increase in appliance sales to urban black households exceeded 50% of the annual market for the appliance concerned only in the case of hotplates, which, it will be remembered, are seen as a last-resort item for households who cannot afford an EFS stove. Chapter Four will consider this issue in detail, but here it can be said that *whilst current scenarios of electrification of urban black households indicate a rapid growth in the market for most HEDs, in no case is this greater than the excess capacity presently experienced in the industry.*

It must be remembered that, unlike the power equipment sector, electrification does not *necessarily* lead to appliance take-up. Access to electricity must be coupled with sufficient disposable income to produce growth. Interviewees consider it unlikely that the more important macroeconomic factors discussed in Chapter One will change radically or rapidly even if such a programme is implemented as a matter of urgency by a new government. Although electrification will provide a major boost, as Chapter Four will show, *the single most important factor shaping the fortunes of the HED industry will continue to be the general economic climate.* Crucial to industry strategists are factors less susceptible to political manipulation, such as personal disposable income, inflation differentials between durables and non-durable consumer goods, interest rates, HP legislation, and indirect taxes. In industry models shown to me,[42] actual consumer *need* is at the bottom of the list.

All of this points to a single major conclusion: electrification may be a necessary condition, but it is not sufficient to ensure that the HED industry will be able to invest in new production processes which will make it more competitive internationally.

b) Tariff Reduction — the Bludgeon Approach?

The HED industry is not internationally competitive. Its exports are minimal, whilst it enjoys moderate to high rates of protection from import competition. *Ad valorem* duties for small appliances and white goods imports range from 20-40%. Adding surcharges and correcting for tariffs on imported inputs gives an effective rate of protection of 35-50%.[43] Average duties on most consumer electronics products are much higher.[44] Duty on television receivers is at present 96%, whilst effective protection is over 500%.

Could the HED industry survive a period of reduced protection designed to spur a restructuring of the industry?[45] The almost universal opinion in the industry is that a

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42 But unfortunately not shared.

43 See Chapter Four.

44 These are effectively revenue-raising, since these products are not produced locally.

45 Whether such a path would lead to such restructuring is discussed in Chapter Five.

minimum of 20-25% 'net protection'[46] is needed to sustain their participation in the industry. With out this, they say, the industry will not survive. The question is whether or not such a rate of protection is acceptable to the South African economy and to the international community.

One the one hand, the higher price of local HEDs represents consumer resources which cannot be spent elsewhere. It also limits sales, thus reducing throughput. To illustrate this point, consider a hypothetical product costing R100 ex-factory. Retail mark-ups (which average about 30%) are on ex-factory prices plus excise duty. Thus on R100 worth of product subject to no excise duty, the price increase represented by a 30% duty is R39,40.[47] On a R100 product subject to 40% duty plus 35% excise duty, the price increase represented by both duties is R71,48 (the increase represented by the duty alone would be R46). Scrapping duties altogether would therefore save consumers money which would be used elsewhere in the economy.

On the other hand, removing protective tariffs could cost the economy 15 000 jobs and roughly R15m worth of production workers' wages annually, plus the multiplier effects of local sourcing.[48] Could continuing tariff protection preserve these jobs? Here it is worthwhile remembering that *ad valorem* duties cease to be effective under differential rates of inflation very quickly, unless the imported content of the South African product is especially high. For example, at 30% duty, a product costing R100 in South Africa's 15% average inflation is overpriced even with duty in only two years. Lower wage inflation and stable prices of imported components and capital equipment can delay this, but ultimately the only way to maintain the effectiveness of a nominal duty is by currency depreciation, or continual increases in the rate of duty.

Thus, although a 20-25% nominal rate of duty *may* be acceptable to trading partners, such a rate would have to increase rapidly if South Africa's inflation rate continues as at present. For example, with 5% offshore inflation, a real rate of protection of 20% would require a 23% *nominal* rate this year, rising to 47,5% by 1996. Without offshore inflation, the rate would have to rise to nearly 65% — clearly unacceptable in the context of GATT.

Chapters Five and Six will return to these issues in greater detail.

4. Summary

The answer to the question posed at the beginning of this section is yes — and no. On the one hand, the HED industry, as presently structured, is unlikely to find it difficult to meet the challenge of increased demand for its products. On the other hand, it seems clear that the industry will not survive a reduction in its trade régime without corresponding changes in the conditions which underlie its lack of competitiveness — a weak internal market, lack of investment incentives, technological backwardness, costly components and raw materials,

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[46] I.e., the difference between duties on imports of final products and on imported components. This measure is nominal and is not the same as effective rate of protection, discussed in Chapter Four.

[47] (R100+R30)x0,32 mark-up = R171,60; R100x0,32 mark-up = R132.

[48] Chapter Four will consider this in more detail.

and so on. In either case, *a great deal depends on the industry's willingness and capability to meet whatever challenge does arise.*

H. Conclusion: Macroeconomic vs. Strategic Analysis

1. Summary

Let us summarise the main points of this chapter:

1. The HED industry is a mixture of wholesale and retail activities, and is driven by the imperative to maintain market share and brand-name and positioning in order to maintain brand premium. This may discourage it from aggressively pursuing low-income markets to an extent. Nevertheless, this limitation exists only in the context of inflexible manufacturing methods.
2. The local HED industry is not especially big, either in the context of the overall economy or in the engineering sector. Its contribution to the economy in simple output terms has therefore not been remarkable.
3. The HED industry has been profitable, but mainly in the context of high effective rates of protection. It is currently suffering significant losses. It has not been a major source of investment of employment growth in recent years, and is experiencing rapid decline in both respects at present.
4. The HED industry is a costly producer and technology consumer, and is not in a position at present to expand effectively into export markets. Its primary growth stimulus will come from an expanding domestic market, assisted by mass housing and electrification policies. Yet this may not be enough to provide it with the basis for a thoroughgoing restructuring.
5. The HED industry is in a good position to supply a growing local market, but at a premium to consumers. Yet it will require increasing protection until such time as it has undergone a process of restructuring which would allow it to compete more effectively with imports.

2. Can The HED Industry Restructure Itself?

These considerations would suggest that policies to raise personal disposable income and moderate inflation (fundamentally contradictory!) are essential. These might allow the HED industry to undertake a restructuring involving investment in new equipment and organisational practices, so that it can survive without today's high rates of protection. Yet the problem with this starting point it that it is but a short step to argue that the industry's problems are *essentially* macroeconomic, and that industry-specific policy is not required. The industry itself would seem to favour such an argument; their conclusion is that aside from protective tariffs and expansionary macroeconomic stimuli, they should be left to their own devices.

Clearly the relationship between the macroeconomy and private expenditure on household durable goods *is* crucial, and an important area for policy.[49] Yet this should not lead us to focus only on these conditions, assuming that the 'black box' of the firm will necessarily adopt the most effective strategies to capitalise on boom and cope with bust. For there are a variety of options open to firms facing a stagnant market (for example). Firms can react 'better' or 'worse' to adverse conditions; similarly, they can utilise opportunities presented by strong demand conditions or can simply earn higher profits and carry on as before. In either case, the strategic orientation of firms is the key to understanding the dynamics of industry health and competitiveness. In many ways, an assessment of this issue is subjective. Subsequent chapters will accordingly focus on this issue.

[49] Indeed, household purchases of durable goods have long been used as an important indicator of cyclical macroeconomic trends. This is because durable goods are optional purchases for households, which can be delayed if disposable income is insufficient to cover expenditure on necessary goods and services. Consumer expenditure on durable goods thus varies more intensely in the course of the business cycle than expenditure on semi- or non-durable goods. Declining household expenditure on durable goods can foreshadow declining consumer confidence.

Chapter Three: The International Context

This chapter will examine the Southern Africa Customs Union's trade in HEDs and the general conditions in the world market for these goods.[1] There is of course no single global market for HEDs. Instead, there are two major product areas, each with its own characteristics, divided into smaller markets for individual products. These are in turn differentiated by geographical region.

The global market for consumer electronics behaves very differently from that for domestic appliances.[2] In general, the former is a fast-moving market marked by large proportions of traded output, rapid product development, global *inter*-regional trade, and domination by Japan and the Far East. On the other hand, the global domestic appliances market is marked by smaller proportions of traded output, less dynamism, significant *intra*-regional trade, and domination by US and European producers — although Far Eastern plants are now rapidly coming to dominate in some areas.

A. Global Trade in HEDs

1. Overall Trends

Tables A-1 and A-2 illustrate basic trends in global markets for HEDs over the last two and half decades. These are the salient points:

a) Global Export Shares and Geographical Distribution[3]

1. In current U.S. dollars, total world exports of domestic electrical machinery (SITC 725) increased by an average of nearly 13% *per annum* from 1970 to 1986. Exports of sound recorders and parts (SITC 891) increased by an annual average of nearly 19% during the same period. SITC 725's share of world exports increased only marginally from 0,46% to 0,51%, whilst SITC 891's share more than doubled from 0,53% to 1,13%. This illustrates the increased importance of trade in consumer electronics.
2. Although developed market economy (DME) exports of SITC 725 grew by an average of 11,2% p.a. from 1970-1986, DME *share* of global trade for these products declined from 94% to 78%. By contrast, developing country (DC) exports grew by a remarkable average of 30,7% p.a. over the same period, raising their share of world exports for these products from 2,5% to 20,7%.

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1 The Southern Africa Customs Union (SACU) has been used as the unit of analysis following the practice of the only available comprehensive data source on trade, the UNCTAD Yearbook of International Trade.

2 The consumer electronics market is also better covered by research and trade journals than the less glamorous domestic appliances market.

3 All figures in relation to table A-1 are in current US Dollars.

3. DME exports of SITC 891 grew by an average of 18,4% p.a. 1970-1986, but again its share of world exports in these products fell from more than 97% to less than 90%. By contrast, DC exports of these products grew by almost 29% p.a. over the period, taking its share for these products from 1,7% of the total to just under 10%.

Implication: Global trade in both categories of HEDs grew considerably 1970-1986. The developing countries' share of exports has grown much more rapidly than that of the developed market economies.

b) Geographical Trade Shares and Distribution, 1978-1987[4]

Table A-1: WORLD EXPORTS OF DOMESTIC ELECTRICAL MACHINERY (ISIC 725) AND SOUND RECORDERS AND PARTS (ISIC 891)

WORLD TOTAL							
	1970			1985-6			
	Value ($th f.o.b.)	% World Exports	% Group Exports	Value ($th f.o.b.)	% World Exports	% Group Exports	Avg. Growth 1970-86
SITC 725	1 420 897	0,46	100 00	10 187 295	0,51	100 00	12,9
SITC 891	1 649 924	0,53	100 00	22 614 493	1,13	100 00	18,9
DEVELOPED MARKET ECONOMIES							
	1970			1985-6			
	Value ($th f.o.b.)	% of DME Exports	% Group Exports	Value ($th f.o.b.)	% of DME Exports	% Group Exports	Avg. Growth 1970-86
SITC 725	1 332 049	0,60	93,75	7 939 093	0,58	77,93	11,2
SITC 891	1 606 964	0,72	97,40	20 311 022	1,48	89,91	18,4
DEVELOPING COUNTRIES AND TERRITORIES							
	1970			1985-6			
	Value ($th f.o.b.)	% of DC Exports	% Group Exports	Value ($th f.o.b.)	% of DC Exports	% Group Exports	Avg. Growth 1970-86
SITC 725	35 478	0,06	2,50	2 109 146	0,50	20,70	30,7
SITC 891	28 380	0,50	1,72	2 183 575	0,52	9,66	28,6

Source: UNCTAD *Handbook Of International Trade Statistics*, 1989. All figures in current US Dollars.

(1) Domestic Appliances (SIC 725)

(a) Imports

1. Imports of SIC 725 are dominated by Europe, whose share of global imports of these products increased from 53% to nearly 59% between 1978 and 1987. The Americas'

[4] Please note that the following data exclude Taiwan, which is regarded as a province of China by the UN. Taiwan's role would be very similar to that of South Korea.

share also grew over the period, from 19% to 24,5%. By contrast, Asia's share has fallen from 20% to 12,6%, reflecting greater self-sufficiency in these products.

2. Africas' share of global imports fell from nearly 5% to just over 2% over the period. SACU's global share also fell from 1,2% to 0,6% 1983-1987.

3. The USA remained the top importer country of SIC 725. In general, European shares of global appliance imports grew over the period, with the exception of West Germany and Italy, the continent's main producers of such products.

(b) Exports

1. Exports of SIC 725 were dominated by Europe over the period, although they fell from 71% of the world total to 64%. The Americas' export share fell from 11% to 7%. By contrast, Asia's export share increased from 17% to 28%.

2. Africa's export share over the period was negligible, as was SACU's.

3. West Germany, Italy and Japan remained the top three exporters of SIC 725 over the period. Hong Kong, Taiwan, and South Korea gained significant export shares, whilst France, the USA, the UK, and the Netherlands lost share. Japan dominated exports briefly in the mid-80s, but fell back from 1985, shedding share to the Asian NICs, particularly South Korea. This was due to appreciation of the Yen over the 80s and resulting Japanese relocation of production to these countries.

Implication: Global imports of domestic appliances have shifted more strongly towards Europe and the Americas, whilst exports have shifted towards (and within) Asia. Nevertheless, European exporters remained dominant in 1987. SACU plays no significant role in world exports, but ranks as a minor importer.

(2) Television Receivers (SIC 761)

(a) Imports

1. Global imports of TVs were dominated by Europe, whose share of such imports rose from 50% to 52%. Asian import share also rose slightly, whilst the Americas' share fell.

2. African television imports fell from 4,7% of the global total to under 3%. SACU's share was not available.

3. The top importer of TVs remained the USA throughout the period. Hong Kong, West Germany, Italy, France and the UK all increased their share of imports.

(b) Exports

1. The Asian share of global television exports rose from 42% to nearly 51% over the period, whilst European share fell from 49% to just less than 42%. The Americas' share also fell slightly.

2. African TV exports were negligible, as were those of the SACU.

3. The world's top exporter of TVs remained Japan, whose share rose from 32% in 1978 to 46% by 1985. Subsequently its share fell dramatically, as production was moved

offshore to South Korea, Singapore, and Hong Kong. West Germany lost share, falling from 19% to under 12% over the period, but remained the third ranking exporter. The USA was the big loser, moving from third place (7%) to seventh (4%).

Table A-2: Major Developing Country Exporters of HEDs, Ranked By Average 1985/6 Values

WORLD TRADE SHARES IN DOMESTIC ELECTRICAL GOODS (SIC 725)				
	Value	% Cntry.	% DC	% World
COUNTRY	(US$ THOUSANDS)	Exports	Exports of Commodity	Exports of Commodity
WORLD	10,187,295	0.51	..	100.00
D'ED. MKT. ECON.	7,939,095	0.58	..	77.93
D'ING. MKT. ECON.	2,109,146	0.50	100.00	20.70
Hong Kong	602,978	3.32	28.59	5.92
Taiwan	559,023	1.59	26.50	5.49
South Korea	447,075	1.38	21.20	4.39
Singapore	194,613	0.86	9.23	1.91
Yugoslavia	126,544	1.21	6.00	1.24
Brazil	46,100	0.19	2.19	0.45
Mexico	31,851	0.17	1.51	0.31
Malaysia	27,863	0.19	1.32	0.27
Kuwait	15,439	0.17	0.73	0.15
India	12,399	0.14	0.59	0.12
WORLD TRADE SHARES IN SOUND RECORDERS AND PARTS (SIC 891)				
	Value	% Cntry.	% DC	% World
	(US$ THOUSANDS)	Exports	Exports of Commodity	Exports of Commodity
WORLD	22,614,502	1.13	..	100.00
D'ED. MKT. ECON.	20,311,306	1.48	..	89.91
D'ING. MKT. ECON.	2,183,575	0.52	100.00	9.66
South Korea	1,058,744	3.26	48.49	4.68
Taiwan	320,274	0.91	14.67	1.42
Hong Kong	316,415	1.74	14.49	1.40
Singapore	315,654	1.40	14.46	1.40
Indonesia	44,330	0.27	2.03	0.20
Malaysia	30	0.20	1.37	0.13
Mexico	28,408	0.15	1.30	0.13
Turkey	13,652	0.18	0.63	0.06

Source: UNCTAD Handbook of International Trade Statistics, 1989.

Implication: Global trade in televisions has been stable, but exports have tended to shift strongly to Asia and within it to the NICs. This is due again to Japanese offshore investment under the impact of a rising Yen. Western television exports have fallen strongly, particularly in the USA. More recently, there has been a substantial relocation of television

production to the NICs of Latin America, particularly Mexico, which have become conduits for Japanese products into the US.

(3) Radio Receivers (SIC 762)

(a) Imports

1. Global imports of radios were stable over the period, with shares falling slightly for Europe, but rising for Asia and the Americas.
2. Africa's share of global radio imports fell by more than half, from 2,6% to 1,1%. SACU's share of imports fell from 0,41% in 1983 to 0,34% in 1987.
3. The top importer of radios remained the USA, followed by West Germany and the UK. Hong Kong's share rose dramatically, from 0,7% to 6%.

(b) Exports

1. Global exports remained dominated by Asia throughout the period, although its share fell from 75% to under 71%. The Americas' share rose strongly from 5,5% to 14%, whilst Europe's fell. The surge in American growth can be attributed to new assembly operations in Mexico and Brazil.
2. African exports were negligible throughout the period, as were those of SACU.
3. Global exports of radios were unsurprisingly overwhelmingly dominated by Japan in 1978 at 55%, but its share had fallen to 28% by 1987. As with other products, the big winners were NICs such as South Korea (3,8% to 13,8%), Singapore (5% to 10,3%, Brazil (2,1% to 5,3%), Mexico (nil to 5,1%) and Malaysia (0,3% to 5,3%).

Implication: Global imports of radios have remained fairly stable. Exports have remained dominated by Asian countries, but have shifted strongly within Asia to the NICs and within the Americas to the NICs of Central and South America.

(4) Sound Recorders and Phonographs (SIC 763)

(a) Imports

1. Global imports of SIC 763 (which includes a variety of products from cassette players to CD players) remained static for all regions expect the Americas, whose share rose from 39,6% to 43%, and Africa, whose share was nearly quartered.
2. SACU was a statistically minor importer. SACU import share rose to 0,56% in the boom year of 1983, but fell to 0,34% by 1987.
3. The top importer of SIC 763 remained the USA, followed by West Germany and the UK. The USA's share rose from 34,7% to 38%, whilst those the latter countries fell.

(b) Exports

1. Global exports of SIC 763 were again dominated by Asia, whose share rose from 65% to 78,4% over the period. The share of Europe and the Americas fell correspondingly, by one-third to one-half.

2. Neither Africa nor SACU were measurable exporters of such products.
3. The top exporter once again was Japan, whose share rose from 58% to 81% by 1984. As with other products, Japan's share then fell to 63,5%, whilst those of South Korea, Singapore, Hong Kong and West Germany rose. Losers included the USA, UK, the Netherlands, and Austria.

Implication: Global imports of SIC 763 have remained fairly stable, but the trend is towards Europe and the Americas, as their production capacity has fallen and Asia's has risen. Africa has been unable to maintain its share of imports. Global exports follow a trend similar to other consumer electronics products, showing a marked domination by Japan, moderated in the late 80s by a shift to the Asian and Latin American NICs and West Germany.

2. Trends, 1980s-90s

a) Consumer Electronics

(1) Key Trends

1. Growth in gloal consumer electronics trade has slowed considerably, and will continue to slow as consumer electronics products become standardised commodities. Growth rates have slowed from 40%-60% p.a. in the 70s and 80s to 10%-15% p.a. by the late 80s.
2. Since the early 1970s, global export and import shares in consumer electronics products have shifted significantly. The essence of this shift has been a decline in exports and a rise in imports in Europe and the USA, with the opposite occuring in Asia.
3. The consumer electronics industry has become even more competitive than it has traditionally been, and the basis of competition has changed. Athough global exports have been dominated by Asian countries led by Japan, increasingly, export production is diversifying to the NICs, mainly in Asia, but also in South America. This has been due to strong appreciation by the Japanese Yen in the late 1980s, which encouraged producers to concentrate investment in new capacity offshore. The key ingredients to attracting such investment have been exchange rate stability, labour cost and quiescence, and capacity to handle and maintain automated production processes. In this respect Japan is following in the footsteps of European and US producers, who began such a process in the 1950s.

(2) Global Rankings

As the chart following illustrates, the Japanese industry easily dominates the world consumer electronics market, with 45% of the total production of the top thirty producers

RANKINGS OF THIRTY MAJOR PRODUCERS OF CONSUMER ELECTRONICS

COUNTRY	RANK BY SHARE OF PROD.	RANK BY SHARE OF CONS.	RANK BY EXPORT INTENS.	RANK BY IMPORT INTENS.	RANK BY SHARE OF EXPORTS	RANK BY SHARE OF IMPORTS
Australia	23	14		5		9
Austria	17	18		20		20
Belgium	15	19	8		8	
Brazil	9	10	10		9	
Canada	18	8		6		6
Denmark	24	24		11		14
Finland	20	22		15		15
France	11	5		10		2
Hong Kong	8	20	2		4	
India	12	9		18		11
Indonesia	19	23		17		17
Irish Rep.	29	28		3		16
Israel	28	30		8		18
Italy	13	6		9		3
Japan	1	2	7		1	
Malaysia	16	27	4		7	
Netherlands	27	11		1		7
Norway	30	26		2		12
Phillipines	26	29	9		10	
Singapore	10	17	6		6	
SOUTH AFRICA	**22**	**21**		**12**		**13**
South Korea	3	12	1		2	
Spain	14	7		13		8
Sweden	25	16		4		10
Switzerland	7	13	5		5	
Taiwan	5	15	3		3	
Thailand	21	25		19		19
UK	6	4		14		4
USA	2	1		7		1
West Germany	4	3		16		5

($26,2bn) in 1990.[5] It is also the top-ranking net exporter, with 59,5% of the total. The USA, on the other hand, is the largest importer of consumer electronics, with $19,2bn worth of global consumption, or 30,7% of the total. (By contrast, the Japanese market comprises 21,4% of total consumer electronics consumption.)

The second largest producer of consumer electronics is South Korea, with $4,4bn output in 1990, 7,6% of total. South Korea's share of consumption, however, is only 1,5% of total, making it the most export-intensive producer in the world. West Germany follows closely behind with 6,57% of total production and 8,5% of world consumption. The last of the top five producers is Taiwan, with 3,95% of production and 1% of consumption. Other major consumers are the UK (5,5% of consumption; France (4,9%), and Italy (4,5%). As we have seen, other developing market economies have made a strong showing in consumer electronics, including Hong Kong, Singapore, Indonesia, Malaysia, Mexico, and Turkey.

South Africa is presently the world's twenty-second largest consumer of electronic goods, but its ninth largest importer (Electronics Industries Federation, 1992). In 1990 production of electronic products was 0,9% of GDP, whilst consumption was 3,4% of GDP. This gives a difference of 2,5% of GDP, making electronics imports a major factor in the balance of payments. The country's ranking in *consumer* electronics is given on the page opposite. Out of the top 30 consumer electronics markets in 1990, South Africa was the 22nd largest producer ($180m, 0,31% of total), and the 21st largest consumer ($353m, 0,56% of total). With $173m net imports in 1990, South Africa ranked as the 13th largest net consumer electronics importer. It supplied only 51% of its own consumer electronics needs, giving an import intensity of 0,49% — 13th out of the top thirty.[6]

(3) Japan Consolidates its Dominance

Throughout the 1970s and early 80s, consumer electronics production was spread between Japan, the United States, Europe, and the Far East. Giant Japanese firms began to dominate the global market in the early 70s, but European and United States firms remained strong in some home markets through historical brand loyalties. More recently, Far Eastern firms have exploited labour cost advantages and supportive state policies to enter the global market on a costs basis.

Now, Japanese domination is on the verge of completion. Many domestic suppliers in North America and Europe are becoming *de facto* assemblers of Japanese 'technology partners', being absorbed by larger firms, or pulling out of the consumer electronics business altogether. The survivors of the present situation are likely to be three big Japanese firms – Matsushita (US$45bn sales in 1990), Sony, ($24bn) and Sharp – who along with Phillips ($30bn) account for the bulk of world production and innovation of consumer electronics products. The reasons for this change are several.

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[5] All figures (in 1990 $US) from the Yearbook of World Electronics Data 1990, Elsevier Advanced Technology Inc., Oxford, 1991. I believe that these figures include home computers.

[6] In at least one area South Africa has become a world leader: pay TV, now a $15bn industry in the US (Financial Mail, November 29, 1991). With more than 615 000 households serviced in 1991[6], pay-TV giant M-Net is currently one of the largest subscriber networks outside the US. The group sold R350m worth of decoders from 1986-91. M-Net is currently negotiating with French parastatal Thompson and various African countries about the possibility of expanding its operations to include exports.

THIRTY MAJOR WORLD MARKETS FOR CONSUMER ELECTRONICS, 1990

All figures in US$ millions
Source: Elsevier Advanced Technology, Oxford, 1990

	I	II	III	IV	V	VI	VII	VIII	IX	X
COUNTRY	GDP ($bn)	PRODUCTION	SHARE OF WORLD PROD.	CONSUM-PTION	SHARE OF WORLD CONS.	NET EX-PORTS OR (IMPORTS)	SHARE OF NET WORLD EXPORTS	SHARE OF NET WORLD IMPORTS	IMPORT/ EXPORT INTENSITY	LOCAL SUPPLY INTENSITY
	3 000	26 200	45,05%	13 400	21,42%	12 800	59,45%		0,96	1,96
USA	5 300	5 450	9,37%	19 200	30,69%	(13 750)		53,01%	-0,72	0,28
South Korea	243	4 400	7,57%	950	1,52%	3 450	16,02%		3,63	4,63
West Germany	1 158	3 820	6,57%	5 316	8,50%	(1 496)		5,77%	-0,28	0,72
Taiwan	459	2 300	3,95%	660	1,05%	1 640	7,62%		2,48	3,48
UK	833	1 793	3,08%	3 452	5,52%	(1 659)		6,40%	-0,48	0,52
Switzerland	250	1 730	2,97%	736	1,18%	994	4,62%		1,35	2,35
Hong Kong	650	1 650	2,84%	450	0,72%	1 200	5,57%		2,67	3,67
Brazil	190	1 400	2,41%	1 290	2,06%	110	0,51%		0,09	1,09
Singapore	29	1 320	2,27%	620	0,99%	700	3,25%		1,13	2,13
France	909	1 208	2,08%	3 117	4,98%	(1 909)		7,36%	-0,61	0,39
India	224	1 150	1,98%	1 410	2,25%	(260)		1,00%	-0,18	0,82
Italy	929	1 040	1,79%	2 816	4,50%	(1 776)		6,85%	-0,63	0,37
Spain	375	1 010	1,74%	1 963	3,14%	(953)		3,67%	-0,49	0,51
Belgium	158	816	1,40%	517	0,83%	299	1,39%		0,58	1,58
Malaysia	39	525	0,90%	200	0,32%	325	1,51%		1,63	2,63
Austria	119	522	0,90%	528	0,84%	(6)		0,02%	-0,01	0,99
Canada	550	330	0,57%	1 440	2,30%	(1 110)		4,28%	-0,77	0,23
Indonesia	93	240	0,41%	300	0,48%	(60)		0,23%	-0,20	0,80
Finland	105	216	0,37%	325	0,52%	(109)		0,42%	-0,34	0,66
Thailand	54	210	0,36%	250	0,40%	(40)		0,15%	-0,16	0,84
SOUTH AFRICA	**119**	**180**	**0,31%**	**353**	**0,56%**	**(173)**		**0,67%**	**-0,49**	**0,51**
Australia	308	150	0,26%	690	1,10%	(540)		2,08%	-0,78	0,22
Denmark	108	140	0,24%	289	0,46%	(149)		0,57%	-0,52	0,48
Sweden	182	130	0,22%	646	1,03%	(516)		1,99%	-0,80	0,20
Phillipines	42	110	0,19%	96	0,15%	14	0,07%		0,15	1,15
Netherlands	214	66	0,11%	1 155	1,85%	(1 089)		4,20%	-0,94	0,06
Israel	40	25	0,04%	80	0,13%	(55)		0,21%	-0,69	0,31
Irish Rep.	34	15	0,03%	114	0,18%	(99)		0,38%	-0,87	0,13
Norway	94	15	0,03%	206	0,33%	(191)		0,74%	-0,93	0,07
Total		58 161		62 569		(4 408)				
Total Imports							21 532			
Total Exports								(25 940)		

1. The world consumer electronics industry is presently without a functional leading-edge product. Since the 1920s, the industry has produced a major innovation roughly every decade — the gramophone in the 20s, radio in the 30s, monochrome TV in the 50s, colour TV in the 60s, hi-fi in the 70s, and VCRs in the 80s. Since the peak of the VCR boom in the late 80s, which at one point accounted for 50% of world consumer electronics sales, there has been no new product to provide the impetus for renewed global growth. Instead, the only source of growth has been the refinement of existing functionalities (eg. the CD to replace the gramophone as the premiere player of recorded sound media) or products (eg. smaller video cameras).

   But this ceaseless innovation war is so technology-intensive — and expensive — that smaller firms are unable to compete. It is also an increasingly rapid process, with new product launches every few months. Most importantly, most European, North American, and Taiwanese and South Korean firms lack the supplier networks, cost advantages, R&D capacity and management approach to compete in such a rapidly changing environment. Consumer electronics is rapidly converging with computer technology, and firms without a productive and innovative edge in the former and strong links to the latter are unlikely to survive. Only the Japanese have strongly developed commercially-viable capacity in these respects.

2. The only major new product on the horizon — high definition TV, or HDTV — is so technology-intensive that only a few major firms will be able to afford to enter this market profitably. At present only the Japanese industry is capable of this.[7]

3. With the exception of Phillips, only the Japanese firms have firm historical bases in *consumer* electronics. Major US (such as RCA[8] and Zenith) and European firms (mainly French parastatal Thompson) have roots in production for the military. As such they have had to *learn* the cost consciousness, marketing strategies, and global orientation of the Japanese, for whom it is deeply-imbedded. This is because the Japanese have learned by producing for a highly discriminating and competitive consumer market — their own.

4. Labour cost is not as central to competitiveness in consumer electronics as it once was. Instead, low labour costs must be combined with access to technology and the capacity to put it into production. In this respect it appears that the Japanese are avoiding the errors of US firms in the 1950s and 60s, who freely shared product and production technology with Japanese firms. Imitative Far Eastern firms such as Daewoo,

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[7] The HDTV saga is a good case in point for the dangers of the consumer electronics market. Japanese firms, who innovated HDTV in the early 1980s in alliance with the Japanese state broadcasting authority, developed their version using the then-most advanced analog technology. Their enormous commitment of research and resources has subsequently been bypassed by later innovators from the USA and Europe, who developed an HDTV system using more refined digital technology. Early Japanese innovation thus proved a disadvantage. Political decisions regarding broadcast standards in the US and EEC markets, however, may be the deciding factor. Even so, it is likely that future HDTV production will be on a joint basis with Japanese firms, who lead in terms of *production* technology.

[8] Now owned by the French parastatal Thompson.

Samsung, and Goldstar are increasingly unable to obtain Japanese technology[9] — or to compete on a cost-basis against highly-automated Japanese firms and their Malaysian, Thai and Indonesian subsidiaries.[10] Their emphasis on automation has meant that labour costs in Japanese offshore plants are now no more than 5-10% of overall costs. (By comparison, in 1985 labour costs in South African firms averaged 22% of costs.[11])

To survive the present shake-up of the industry, consumer electronics firms *elsewhere* will have to achieve four things.

1. *They must be prepared to spend at least 4% of turnover on R&D* — which, in the case of Japanese firms, runs into the US$ billions.

2. *They must be able to design and produce their own proprietary semiconductor (IC) chips*, which are the basis of both new product development and profitability. On the one hand, new products such as HDTV, digital audio tape (DAT) and 'fuzzy-logic' domestic appliances are as much computers as consumer electronics, and design-intensive application-specific chips make them possible. On the other, proprietary control over ICs is a major source of ongoing profits, as licensed producers are usually tied to their use, for which they pay a premium of 15-20% (interview sources).

3. For the same reasons *successful CE firms will have to have experience in computer design and production, or strong linkages to firms who do.* The competitive success of firms such as Sharp and Toshiba has recently come more and more to be based on their ability to combine computer technologies, such as liquid-crystal displays used in laptop computers, with CE products. This might involve the use of previously-developed capacity in this area, such as Toshiba, or acquisition of experienced subsidiaries. Whichever path is chosen, close links amongst firms or divisions in all facets of product development and production are required to maintain the coherency of the competitive process

4. *Successful CE firms must be prepared to devote as much R&D to production technology as to new product design, and to automate ruthlessly to bring down costs and increase flexibility.* Since the greatest part of added value, in Schumpeterian fashion, comes from R&D activities, skill in putting new designs into production rapidly can mean the difference between a commercially *successful* firm and one which merely has a good product. Moreover, producers in the rest of the world who wish to produce under license to the Japanese must have similar capacities to cope with the flow of new products.

5. *The successful CE firm must have an integrative approach to management*, linking technical, productive, and marketing operations in a systemic fashion, combined with a global and long-term view of their futures. The rapidly-changing nature of the CE

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9 The Japanese are generally unwilling to sell or license their proprietary technology to smaller firms in the way US firms did in the 50s, and 60s. Only larger firms with potential to influence the acceptance of international standards required for a new technology like HDTV are considered as technology partners.

10 South Korean firms are said to be gradually moving out of consumer electronics altogether, reducing investment by 1% in 1990.

11 From 1985 manufacturing census.

market means that firms must be able to anticipate and react quickly to changes in order to survive.

(4) Implications

In sum, the global consumer electronics industry is marked by rapid and complex technological change, shortened product life-cycles, increasing capital intensity and strategic global positioning by both major and minor players. *Domestic production of consumer electronics for most countries will soon be reduced either to assembly of components produced elsewhere or, where market size justifies it, local production by subsidiaries of Japanese or, possibly, other Asian firms.*[12] At present, it is practically unthinkable for smaller consumer electronics industries to enter even niche markets as independent producers: for even this will require activities on a far greater scale than most local firms can contemplate.

b) Domestic Appliances

(1) Key Trends

As we have seen, global exports of domestic appliances grew at an average annual rate of 12,9% from 1970-1986 (UNCTAD, 1989). This was significantly less rapid than for consumer electronics, which experienced average annual growth approaching 20%. Exports from the developed market economies grew 11,2% p.a. in the same period, whilst exports from the developing countries grew at 30,7% p.a. There has thus been a major shift in the geographical production of domestic appliances. In 1985-6, the DME countries produced 78% of world exports of these goods, whilst the developing countries produced 21% Major developing country exporters at that time included Hong Kong, with 28,5% of the developing country total, Taiwan (26,5%) and South Korea (21,2%).

The European white goods market was worth an estimated $15bn in 1990. It is dominated geographically by Italy, with 34% of total output, followed by West Germany (27,5%), the UK (11,1%), Spain (8,3%), France (7,9%), Scandinavia (6,2%) and the Benelux countries (1,7%). This conceals domination of the European market by Swedish super-conglomerate Electrolux, however. The latter leads in terms of total revenues, followed by Bosch-Siemens, Whirlpool, Miéle, AEG, Thompson EM, and General Electric.

A major shake-up has been underway in recent years in the depressed European white goods market, with repercussions for South African white goods producers. This has been marked by a spate of acquisitions by large firms, who have bought out smaller but well-established competitors. This has been led by Electrolux, which controls 22% of the European market and 15% of the US market (*Financial Times*, December 15, 1991), as well as such major brand names as Kelvinator, Zanussi, Tappan, Thorn, and Frigidaire, as well as by General Domestic Appliances, which combines British company GEC and US General Electric with

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[12] Anglo American is reportedly talking to Korean chaibol Daewoo about the possibility of setting up production of the latter's audio and TV products.

Thompson of France and Fagor of Spain. The impetus for this process can be found in three factors:

- Essentially saturated, the European white goods market has grown at only 3% p.a in recent years (*Advertising Age*, March 5, 1991). Hundreds of firms have been bought out, closed, or retrenched workers in the face of slack demand. Expansion through acquisition or merger has three benefits, in that it allows companies (i) to expand market share through access to regional brand-dominated markets; (ii) to expand into Eastern Europe; and (iii) to source low-end products and components (*Financial Times*, June 16, 1992).
- The European white goods market is heavily fragmented: only 1/5 of products are sold in more than two countries (*Financial Times*, February 6, 1992). There are, for example, 2 300 different fridges and 560 microwaves sold in Europe at present. Prices of similar products diverge by as much as 35% between countries. This makes it all but impossible for producers to effectively achieve potential scale economies and to expand market share. It is estimated that streamlined designs could cut costs by 10%. Pan-European marketing is an essential step in this direction.
- Companies from North America and Japan are attempting to capture strategic market share in Europe (*Financial Times*, June 24, 1992). European producers are wary of the technological prowess of these firms and are attempting to develop a response capability through increased scale and refined automation techniques.

Indicative of the challenge is the merger of Whirlpool, the US' largest white goods producer (30% of US market), and Phillips, at 12% of the market second largest European brand[13] after Electrolux (*Financial Times*, November 1, 1991; *Advertising Age*, March 5, 1990). Whirlpool bought Phillips in 1989 in order to achieve a presence in the EEC market, since the US market is saturated. Whirlpool and Phillips (under the name Whirlpool International) will also share production and product technology, especially in electronics. US firms have for some time been forced to compete by cost reduction, both in design and manufacturing. This has led to increased automation and cellularisation, which Whirlpool will bring to Phillips on a greater scale. In turn, Phillips will teach Whirlpool about rapid changeover — necessitated by the small size and diversity of European national markets.

A major complementary initiative has been undertaken by European retailers, who have begun to organise on a pan-EEC basis to encourage manufacturers to do the same. One of these, Euronics, has convinced Whirlpool to launch a pan-EEC range of appliances — a path also pursued by Electrolux. In return, Euronics has committed itself to a 40% yearly increase in sales of Whirlpool/Phillips products. Retailers want to be able to buy in bulk, and to improve cross-border customer service, especially of portable consumer electronics. A major obstacle to such initiatives, however, is the local prejudices of consumers who have grown used to specific designs. To cope with this, Electrolux has begun to market both local speciality products and pan-European products (Electrolux and Zanussi) in each market, to capture maximum market share.

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[13] As distinct from company.

(2) New Products

Development of new 'fuzzy-logic' microchip controls, magnetic induction heating processes, and process technologies may reverse the trend towards developing country production and export of these goods. The most important changes in domestic appliances in the recent period have been in energy conservation and in control technology. Energy conservation in appliances became important post-1973, when energy costs rose significantly (Januzzi and Schipper, 1991). Since then, the electricity-intensity of all major appliances has fallen by an average of 25% (see page opposite). This trend has continued into developing countries, where energy imports became critical in the same period. Also critical has been the role of energy-consumption regulations in the US (since 1990), especially California (since 1979). This process has been market-driven, not technological; it is estimated that many appliances could used even 50% less electricity than at present should consumers demand it. On the other hand, CFC-reduction regulations in fridge manufacture have generally been state initiatives.

Control technology is being influenced by the use of 'fuzzy-logic' circuits which monitor and adjust variables associated with appliance function, mainly with washing machines, refrigerators, and cooking apparatus. For example, fuzzy control of washing machines involve feedback monitoring of water temperature, soap content, rinse periods, and so on. Such controls contribute to energy efficiency, but also to reduced noise levels and longer product life. Linked to this is advances in 'intelligent' appliances which cooperate, such as alarm clocks which turn on the kettle and run the bath (*Economist*, December 8, 1991).

(3) Implications

The principal implication which arises from the foregoing is that the new white goods majors will emerge with vast marketing, research and development, and production capabilities. To compete with them would require a sound basis in an allied industry, which most South African firms lack. *A more practical approach would involve strategic alliances with one or more of the emerging giants to obtain access to their strengths.* This could allow exports to Europe as well as access to the kinds of process and product technology which are essential to flexible, quality production.

B. Southern Africa's External Trade in HEDs

1. The Regulatory Environment of South African Trade in HEDs

In most respects South Africa's trade régime for HEDs is uncomplicated: a set of *ad valorem* duties accompanied by variable surcharges, and in some cases excise duties (applied to domestic products as well). In combination this tariff structure can be very complicated, as in the case of televisions, to be discussed in Chapter Five. Formula duties are applied in some cases, usually in the form of an either/or option of a percentage of FOB value of a fixed amount per unit. There are also special rates of duty for Most Favoured Nation trading partners in the case of consumer electronics.

The type of tariff protection afforded to the HED industry is central to its very existence, and helps to explain its structure. Indeed, the development of this industry in South Africa has been made possible by protective duties against imports from established producers. This has encouraged local production of these goods, but in some cases has also allowed a proliferation of producers who exist only because of very high rates of protection. Apart from the higher cost this system imposes on the final consumer, this situation has had the effect of preventing potentially efficient producers from achieving turnover sufficient to achieve economies of scale in production.

The Table at the end of this chapter lists imports of HEDs for 1988-1991 in detail. This chart also includes the various tariffs applicable to such imports in those years, and an estimation of the value of such duties were they charged at their full rate. That this happens in practice is by no means the case, as various exemptions are available and, in the industry's opinion, Customs is extremely slack in policing the system.

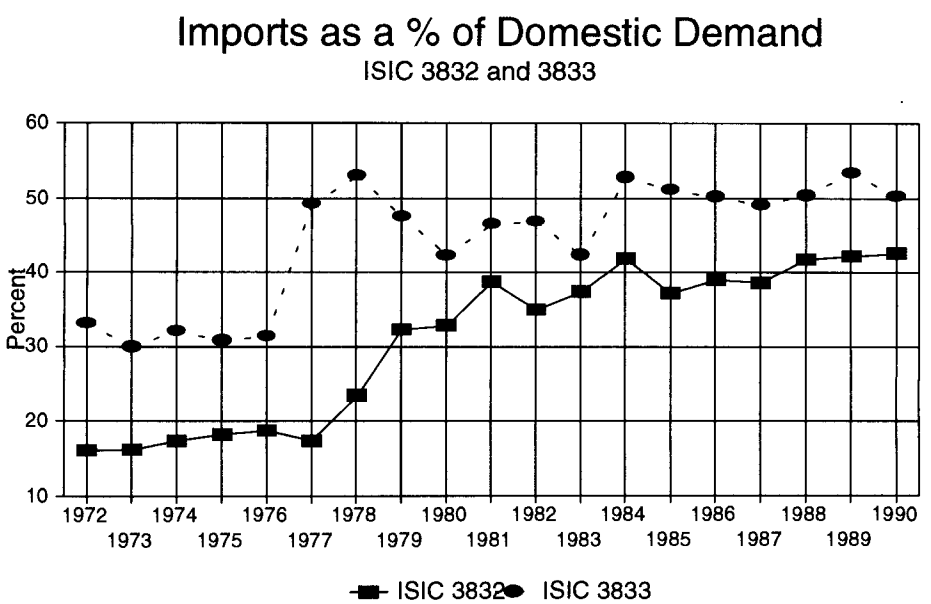
a) Average Duties

Average duties *for HEDs* in aggregate rose from 63% to 68% from 1988-1991. Average duties for HED parts rose from 23% to just over 30% over the period.

Average duties for *consumer electronics* imports are much higher than for white goods or small appliances. Consumer electronics imports attract a nominal duty of over 90% — much of it accounted for by the 40% surcharge applied to imports of radios and other audio equipment and the nearly 100% duty on televisions. This is to be compared to average nominal duties of +/- 30% for *white goods and small appliances.*

Average duties on imported *parts* for HEDs vary considerably, ranging from free for TV tubes to 100% for other TV parts. On average, parts for white goods and small appliances

Figure B-1



attract duties of just less than 30%. Average nominal duties on consumer electronics parts, however, are significantly lower — as low as 23% in 1988.

A significant factor in the tariff structure is the import surcharge. The surcharge has been used both to raise revenue and limit imports, but has become a permanent feature of the trade régime in the case of consumer electronics products. Surcharges vary from 5% for most small appliances, to 15-25% for some white goods, and 40-45% for many consumer electronics products. Surcharges on parts are generally lower, but usually match those on final products if applied (such as washing machines). In some cases it has been explicitly recognised that local production would cease were surcharges to be withdrawn, as in the case of televisions (BTI, 1991). This has sometimes resulted in an amalgamation of the *ad valorem* and surcharge into single *ad valorem* duty.

2. Trade Volumes, Shares, and Distribution

Combined SACU imports of HEDs identifiable in the Trade Statistics for 1991 were R529,6m. As a percentage of total imports of manufactures, HEDs are in the 2-3% range, making them at present a relativley minor drain on the balance of payments. This must be considered in the context of very high effective rates of protection in some cases, however (see Chapters Four and Five).

a) Trade Balance and Import Penetration

The balance of HED trade is difficult to quantify due to the unavailability of reliable and comprehensive statistics, particularly for exports, over a long time period. In most cases the trade balance in particular product lines is strongly negative, with exports in no case exceeding 30% of imports. In fact, the trade account for ISIC 3832, which includes (but is not limited to) consumer electronics products, has deteriorated considerably over the last two decades, reaching a deficit of R1,8bn in 1990 (IDC, 1992). The trade balance for ISIC 3833 (small appliances) has also deteriorated, and stands in the R200m range. It has not proved possible to provide an accurate trade balance for white goods.

Impots as a percentage of domestic demand have tended to rise since 1972, particularly for radio and television and small appliances. Using CSS figures it was possible to compare physical units imported and produced for certain items over the period 1988 to 1991, as portrayed in Table B-1.

Table B-1: Production and Importation of Selected HEDs

FRIDGES AND FREEZERS					
YEAR	LOCAL	IMPORTS	TOTAL	LOCAL	IMPORTS
1988	226,708	44,746	271,454	83.52%	16.48%
1989	338,211	24,051	362,262	93.36%	6.64%
1990	352,920	37,033	389,953	90.50%	9.50%
1991	355,435	46,240	401,675	88.49%	11.51%
WASHING MACHINES					
YEAR	LOCAL	IMPORTS	TOTAL	LOCAL	IMPORTS
1988	51,681	110,795	162,476	31.81%	68.19%

1989	68,022	53,710	121,732	55.88%	44.12%
1990	109,312	105,978	215,290	50.77%	49.23%
1991	86,891	99,192	186,083	46.69%	53.31%
ELECTRIC STOVES					
YEAR	LOCAL	IMPORTS	TOTAL	LOCAL	IMPORTS
1988	174,036	161,383	335,419	51.89%	48.11%
1989	177,904	75,787	253,691	70.13%	29.87%
1990	161,094	97,773	258,867	62.23%	37.77%
1991	156,606	129,612	286,218	54.72%	45.28%
TELEVISIONS, COLOUR					
YEAR	LOCAL	IMPORTS	TOTAL	LOCAL	IMPORTS
1988	206,000	19,578	225,578	91.32%	8.68%
1989	219,000	74,173	293,173	74.70%	25.30%
1990	205,000	96,559	301,559	67.98%	32.02%
1991	285,000	90,502	375,502	75.90%	24.10%
TELEVISIONS, MONOCHROME					
YEAR	LOCAL	IMPORTS	TOTAL	LOCAL	IMPORTS
1988	145,000	4,936	149,936	96.71%	3.29%
1989	125,000	5,292	130,292	95.94%	4.06%
1990	168,000	64,979	232,979	72.11%	27.89%
1991	201,000	112,240	313,240	64.17%	35.83%

Source: CSS Statistical News Releases, various; annual and monthly trade statistics, 1989-92. All figures are in units.

(1) White Goods

- The import share of the local market for fridges and freezers fell from 16,5% in 1988 to 11,51% in 1991 (a fall of 30%).
- The import share of washing machines fell from 68% to 54% (a 20% fall) in the same period.

The share of electric stove imports fell from 48% to 45% (a 6,2% fall).

In each case the import share in 1991 rose slightly compared to the previous year. The trend fall in import penetration over the period 1988-91 is consistent with the general decline in the HED market over that period.

(2) Consumer Electronics

- By contrast to white goods and small appliances, the import share of televisions rose sharply over the period on the basis of expanded imports of low-cost sets. The import share of colour TVs rose particularly fast, from 8,7% in 1988 to 24% in 1991 (a 250% rise), whilst that of monochrome TVs rose from 3,3% to 35,83% over the period (a 1018% rise) — almost entirely in 1990. This was due to a sudden influx of very low-priced sets from the far East imported by cash discounters (interview sources).

(3) Analysis

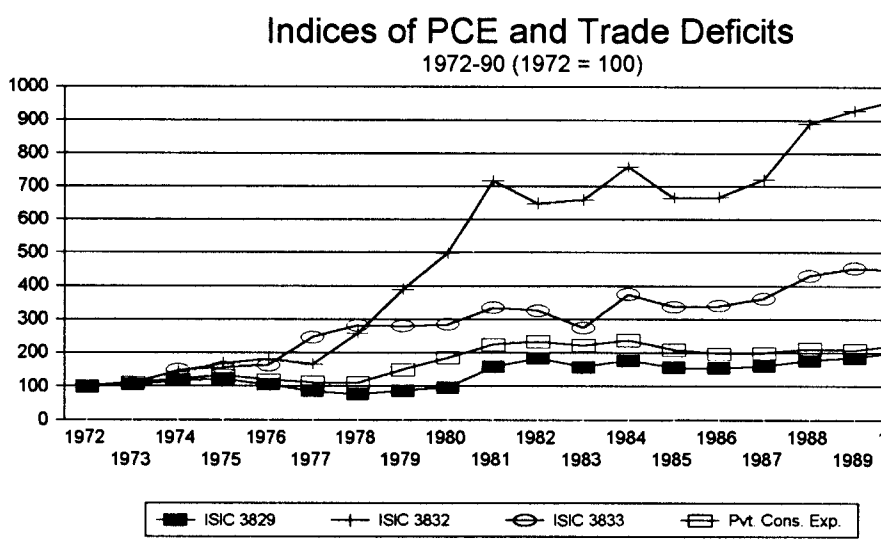
In general, imports to the local market are high-end products: more sophisticated televisions, VCRs, video cameras, CD players, and certain white goods. The local manufacturing sector has traditionally concentrated on supplying the middle and bottom of the market, with the emphasis on the former.

Unit imports fell during 1988-90 primarily because of credit restrictions, import surcharges, and weak demand. Thus, lifting of credit limits and some surcharges in 1990 had the effect of increasing imports that year and the following. Also significant has been a phased-in relaxation of ordinary duties on certain TV imports, which sparked off the massive rise in monochrome imports during 1990.

It is notable, however, that the lifting of credit restrictions seems to have had the effect of also increasing the import *share* of every item except colour TVs in the 1989-1990 period. The import share of fridges and freezers increased 12,7%; of washers 8,28%; of electric stoves 19,9%; and of monochrome TVs 28,5%. This implies that increased spending on HEDs during upswings may be significantly import intensive, as is indicated by the analysis of the 1983-85 period below.

Figures B-2, B-3 and B-4 illustrate in a general way the relationship between private consumption expenditure and trade deficits in the broad industrial classification levels incorporating HEDs:

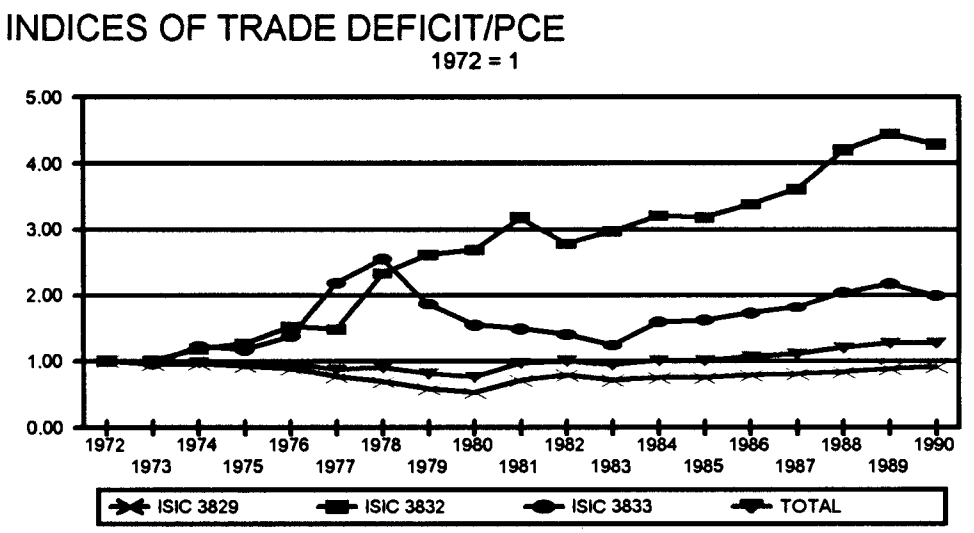
Figure B-2



- Figure B-2 shows indices of PCE and imports of HEDs over the period 1972-1990. It shows that historically these two variables have tended to move strongly in tandem, although they began to diverge somewhat from 1986 onwards. Although production in HED sectors seems to follow suit, a lag is discernable. This implies (i) that increased consumption of HEDs is matched by equally increased importation, rather than by increased local supply; and (ii) a tendency for imports to respond more quickly than

local production to economic fluctuations. Given industry concerns about lack of sufficient market volumes, this inability to capitalise on upswings is of concern.

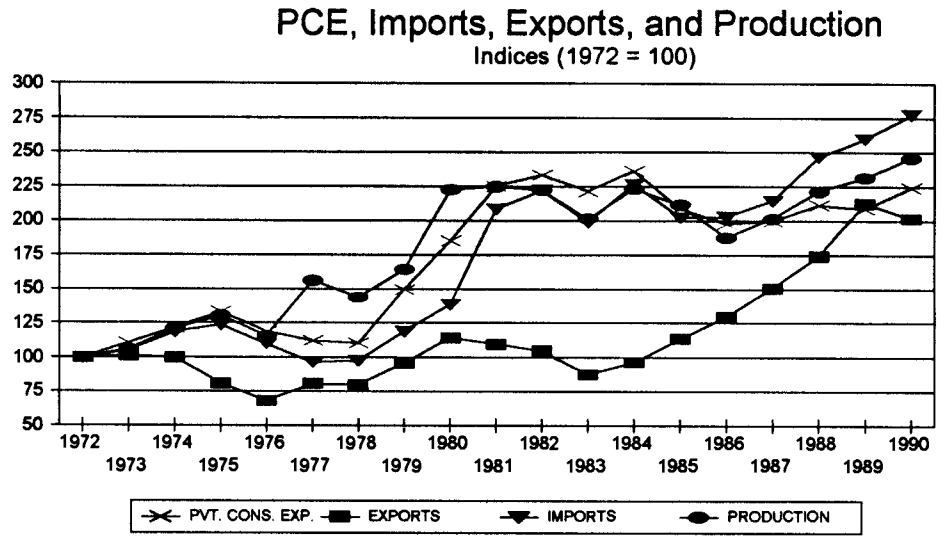
Figure B-3



- Figure B-3 shows four composite indices generated by dividing the index for trade deficits in HED sectors by the index for PCE in each sector. This shows whether trade deficits are rising more or less rapidly than PCE in each sector. Figure B-3 shows that (i) trade deficits have risen much more rapidly than PCE in electronics (ISIC 3823); (ii) the same trend is evident in small appliances to 1978 and again from 1982 to 1987; (iii) trade deficits have risen more slowly than PCE in ISIC 3829, but have begun to exceed the latter in recent years.[14] Taken together, this implies that import penetration of the local market has tended to rise even in the face of stagnating PCE.
- Figure B-4 consolidates this data and shows that whilst the indices for imports, exports and PCE have tended to rise over time, that for production lagged considerably behind until 1983, when it also began to rise.
- The fact that unit import shares have tended to fall whilst trade deficits have risen suggests that (i) the depreciation of the Rand has more than compensated for a decrease in relative unit imports, and/or (ii) export values have risen more slowly than import costs. This is indeed suggested by the graphs, which show that trade deficits have risen most strongly in those areas where exports are negligible, such as consumer electronics and small appliances.

[14] Although the inclusion of a number of non-HED products in this sector makes it difficult to draw a conclusion from this.

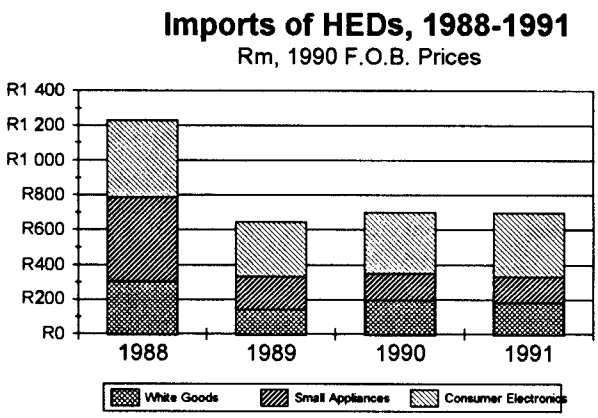
Figure B-4



(4) Grey Market Imports

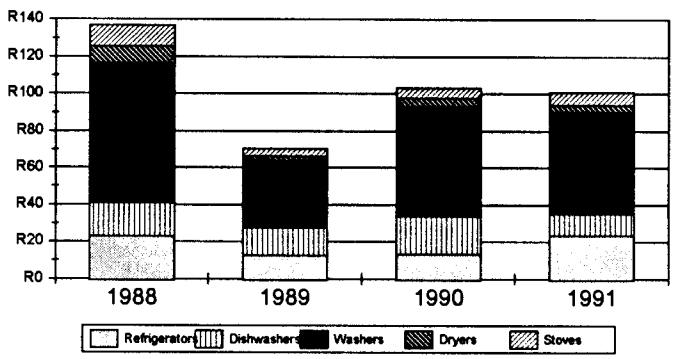
The issue of grey market imports — direct imports by unlicensed distributors — is closely linked to that of the tariff structure. High tarrifs encourage illegal importation of products which can be sold easily, particularly for cash. Typically such products are unsupported by warranties or service, although many manufacturers provide such service anyway so as not to compromise brand name. This is obvously a costly process for them.

Figure B-5



Most industry interviewees felt that the existing tariff structure encouraged grey market imports, but understandably favoured better enforcement rather than lower tariffs. It is impossible to quantify illegal grey market imports, but interviewees claim it to be a significant factor in consumer electronics, attributing to it much of the poor performance of recent years.

Figure B-6



b) Structure of Imports[15]

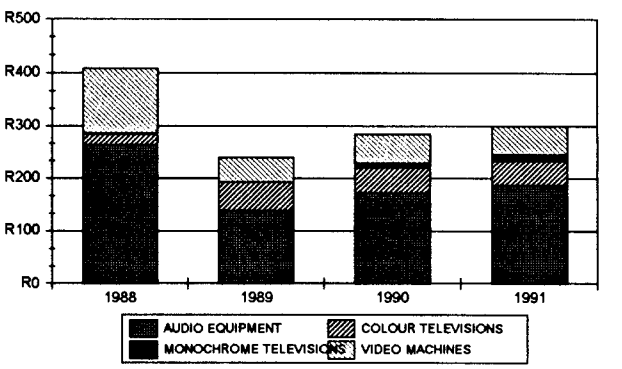
Combined imports of HEDs identifiable in the Trade Statistics for 1991 were R545,5m. Of this 61,2% (R333,5m) was for imports of consumer electronics; 16,4% (R89,5m) for small appliances; and 22,4% (R122,3m) for white goods.

Over the last four years the composition of imports of HEDs has changed steadily from 62% for domestic appliances and 38% for consumer electronics to 48% and 52%, respectively. Imports of audio equipment are consistently the largest of the major categories, at R205m for 1991. Next comes TV at R121,8m; white goods at R109m; and small appliances at R93,9m.

Of *audio equipment*, the largest import group in 1991 was radios (including portables and radio-tape) and music centres, at R85,2m (41,5% of audio), followed by car audio at R46,1m (22,5%); then hi-hi equipment at R73,7m (36%). Major individual import items are music centres at R54,3m, car radios at R43,4m, loudspeakers at R38,9m and amplifiers at R18,2m.

In *video equipment*, VCRs were the single largest import item in 1991, at R57,4m, 47% of total video equipment imports. Imports of CTV were R50,8m (42%), and of MTV R13,7m (11%), reflecting both the higher cost of CTV and the greater dominance of local production of MTV.

Figure B-7

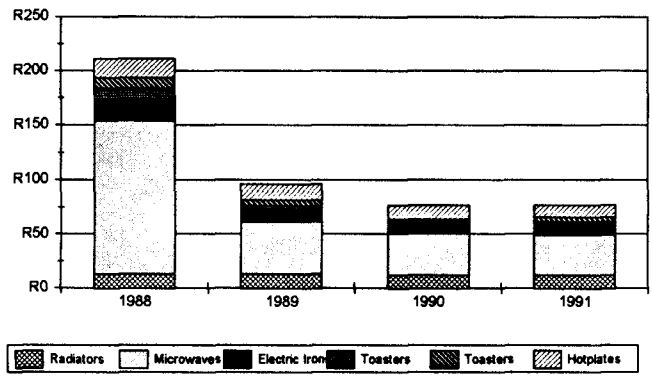


In *white goods*, the

[15] Based on CSS, 1988, 1989, 1990, 1991. All import figures are in current Rands, f.o.b.

largest import item in 1991 was washing machines at R60,7m, 55% of total white goods imports. Next came high-end refrigerators at R25,6m (23%), followed by dishwashers at R12m (10%). These are items which are not produced in great quantity locally.

Figure B-8

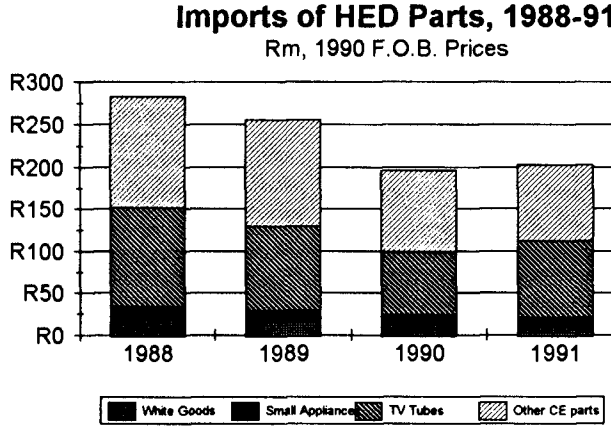


In *small appliances*, the largest import item is microwave ovens, at R41,2m in 1991, 44% of total small appliance imports. Next came electric radiators at R13,4m (14%), followed by hotplates at R12,4m (13%), hair dryers at R10,6m (11%), and electric irons at R8,7m (9%).

Imports of *parts* for HEDs are also significant, totalling R197 348 676 in 1991. Imports of parts for consumer electronics in 1991 were by far the largest single item at R197 348 676, 89% of total parts imports. Imports of parts for small appliances stood at R10 010 339 (4,56%), whilst those for white goods were R13 979 281 (6%).

The largest single imported part category in 1991 was R174,4m for TV parts — 78,84% of the total for HEDs parts imports. The largest single item in the TV group was colour picture tubes at R88,5m. Also significant was other TV parts at R41,7m.

Figure B-9



c) Structure of Exports

Figures on total exports of HEDs are difficult to obtain, and at the time of research were unavailable for

STRUCTURE OF HED EXPORTS, 1988-1991

SOURCE: TRADE STATISTICS FOR CALENDAR YEARS 1989 AND 1990, AND MONTHLY BULLETIN OF TRADE STATISTICS, JANUARY 1992 ALL FIGURES IN 1990 RANDS. FIGURES ARE INFLATED DUE TO INCLUSION OF INDUSTRIAL MACHINERY OF A SIMILAR TYPE.

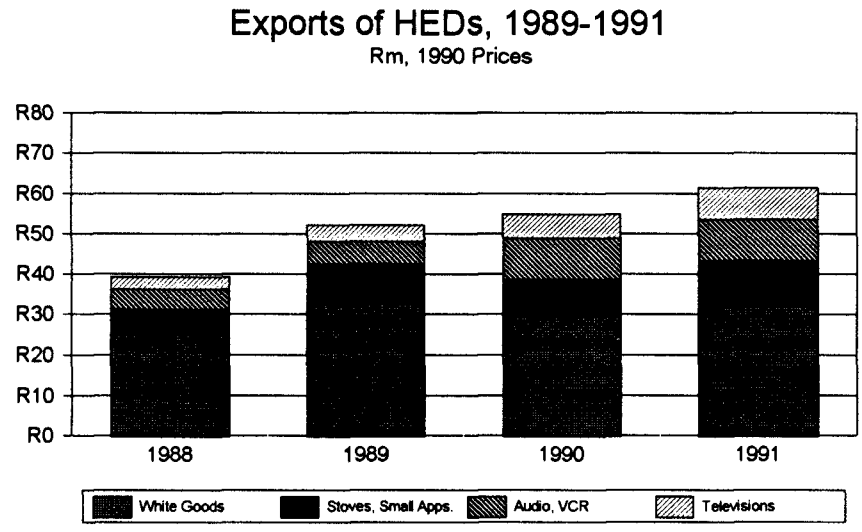
ITEM	1988	1989	1990	1991	% OF TOTAL	% OF SUBTOTAL
REFRIGERATORS	17 753 534	20 397 913	18 929 399	20 240 680	32,9%	46,4%
DISHWASHERS	5 684 772	7 710 436	5 668 062	8 365 895	13,6%	19,2%
WASHERS	705 810	1 232 272	1 545 119	1 531 196	2,5%	3,5%
DRYERS	894 139	3 743 512	3 124 244	2 209 448	3,6%	5,1%
STOVES & SMALLS	6 375 307	9 583 722	9 776 386	11 313 088	18,4%	25,9%
TOTAL DA	31 413 562	42 667 856	39 043 210	43 660 308	71,0%	100,0%
HI-FI	1 859 248	1 840 532	4 120 745	5 228 645	8,5%	51,8%
VCRs	2 460 743	2 212 258	1 768 331	1 262 392	2,1%	12,5%
RADIOS	559 465	1 307 804	3 706 753	2 660 338	4,3%	26,4%
PARTS	217 363	276 924	457 990	933 981	1,5%	9,3%
TOTAL AUDIO & VCR	5 096 818	5 637 517	10 053 819	10 085 355	16,4%	100,0%
TELEVISIONS	1 387 480	1 669 492	1 403 353	1 994 760	3,2%	25,7%
TV PARTS	1 390 974	2 232 506	4 352 445	5 755 545	9,4%	74,3%
TOTAL TV	2 778 454	3 901 998	5 755 798	7 750 306	12,6%	100,0%
TOTAL EXPORTS	39 288 834	52 207 371	54 852 827	61 495 969	100,0%	--

years prior to 1988 due to secrecy asociated with trade sanctions. Trade statistics on *certain* HEDs and related goods[16]are available, however, and are presented in Table B-2. They show that in 1991 total exports of HEDs, related goods, and parts stood at R66,9m, whilst total imports were 1,07bn.[17] Exports were thus 6,25% of imports. Exports of domestic appliances and parts comprised 71% of the total. Those of hi-fi and VCRs were 16,4%, and those of televisions 12,6%.

(1) Domestic Appliances

Within *domestic appliances*, refrigerators stood out at 46% of domestic appliance exports and 33% of HED exports overall. Next was stoves and small appliances at 26% of domestic appliances exports and 18,4% of HED exports. Export (re-export) of dishwashers stood at 19% of the domestic appliances total and 13,6% of all HED exports. This suggests the level of re-export included in other export figures: dishwashers are not produced locally.

Figure B-10



(2) Consumer Electronics

Within consumer electronics, exports of hi-fi, radio and VCRs and parts stood at 16,4% of HED exports, whilst those of televisions and parts were 12,6%. Exports of TV parts alone

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16 For example, industrial refrigeration equipment in included in the export figures for refrigerators. I have adjusted the import figures used in the following calculations to account for this, but the figures can at best be regarded as potentially indicative.

17 Current prices. This figure is approximately 40% higher than the figure for HED imports given above.

were over 9% of HED exports — again illustrating the role of re-export in the export figures.

Table B-2: STRUCTURE OF HED EXPORTS, 1988-1991

ITEM	1988	1989	1990	1991	% OF TOTAL	% OF SUBTOTAL
REFRIGERATORS	17 753 534	20 397 913	18 929 399	20 240 680	32,9%	46,4%
DISHWASHERS	5 684 772	7 710 436	5 668 062	8 365 895	13,6%	19,2%
WASHERS	705 810	1 232 272	1 545 119	1 531 196	2,5%	3,5%
DRYERS	894 139	3 743 512	3 124 244	2 209 448	3,6%	5,1%
STOVES & SMALLS	6 375 307	9 583 722	9 776 386	11 313 088	18,4%	25,9%
TOTAL DA	31 413 562	42 667 856	39 043 210	43 660 308	71,0%	100,0%
HI-FI	1 859 248	1 840 532	4 120 745	5 228 645	8,5%	51,8%
VCRs	2 460 743	2 212 258	1 768 331	1 262 392	2,1%	12,5%
RADIOS	559 465	1 307 804	3 706 753	2 660 338	4,3%	26,4%
PARTS	217 363	276 924	457 990	933 981	1,5%	9,3%
TOTAL AUDIO & VCR	5 096 818	5 637 517	10 053 819	10 085 355	16,4%	100,0%
TELEVISIONS	1 387 480	1 669 492	1 403 353	1 994 760	3,2%	25,7%
TV PARTS	1 390 974	2 232 506	4 352 445	5 755 545	9,4%	74,3%
TOTAL TV	2 778 454	3 901 998	5 755 798	7 750 306	12,6%	100,0%
TOTAL EXPORTS	39 288 834	52 207 371	54 852 827	61 495 969	100,0%	--

Source: Trade Statistics for calendar years 1989 and 1990, and Monthly Bulletin Of Trade Statistics, January 1992. All figures in 1990 Rands. Figures are inflated due to inclusion of some industrial machinery of a similar type.

3. Trade Trends, 1981-1991

a) 1981-1987[18]

The chart following this page presents SACU's 1981-87 shares of global imports and exports, by value, of selected HEDs. It also shows SACU's import coverage (the value of imports matched by exports of the same product). Finally, it shows the share of total SACU imports or exports represented by trade in the product in question.

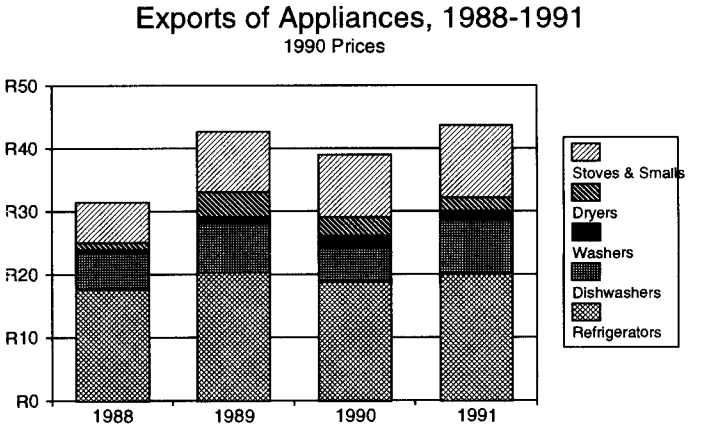
[18] This section is based primarily on UNCTAD trade data contained in UNCTAD, 1987 and 1989. South African trade data for much of this period is patchy and hard to obtain. Available Customs and Excise data corroborates the UNCTAD data used.

(1) Domestic Appliances

(a) Domestic Cooking and Heating Apparati (SIC 6973)

SACU's imports of SIC 6973 fluctuated considerably as a share of world imports of such products. In 1981 they stood at only 0,54%. By 1983, however, they had risen to 8,5% of world imports — a 1 474% increase! SACU import share stood at 7% in 1984, just under 5% in 1985, but fell to 0,32% in 1987. The 1983-85 jump was enough to place SACU in the top ten importers of such products internationally.

Figure B-11



SACU exports of SIC 6973, on the other hand, have remained stable at just 0,1%-0,2% of world exports. Export cover has stood at 20-30%, except during the 83-85 period, when it dropped to 2-3% of imports. Most exports of such products are re-exports to the rest of Africa (interview sources).

As might be expected, SIC 6973 import share in the SACU total was minor until 1983, when it jumped to 0,78% of total imports. It then moderated to 0,59%. Exports of 6973 as a percentage of SACU exports, although tiny, also rose slightly during the 83-85 period.

(b) Domestic Refrigerators (SIC 77521)

SACU imports of SIC 77521 tended to fall, from 1,5% of the world total in 1981 to 0,14% in 1987. Export share also fell, however, from 0,1% to 0,04%. Export cover has been poor, ranging from 2% to 31% (1987). Again, exports are largely r-exports to Africa. Imports as a percentage of SACU total imports fluctuated at around 0,1%, whilst the export share ranged from 0,05% to 0,1%, making domestic refrigerators SACU's top HED export. Export cover, however, was poor until 1987, when it jumped to almost 31% on the basis of a rise in exports unmatched by rise in imports.

(c) Household Laundry Equipment (SIC 7751)

SACU imports of SIC 7751 (both washers and dyers) fell from 1,5% of world imports in 1981 to 0,75% in 1987. Exports also fell, but have been so small as to be statistically almost unmeasurable. Export cover has thus been very poor — never more than 2%. SIC 7751 shares of SACU imports and exports were miniscule through the mid-1980s.

(2) Consumer Electronics

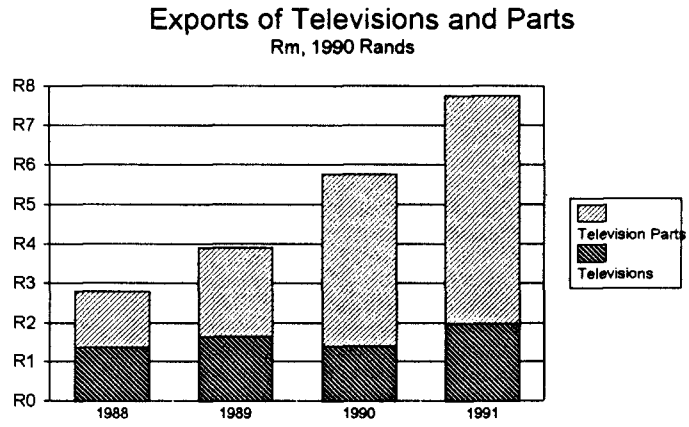
(a) Colour Televisions (SIC 7611)

SACU share of global CTV imports rose slightly throuhout the 1980s, from 0,03% in 1981 to 0,17% in 1987. Imports as a percentage of SACU imports were also minor. Exports have been negligible as a share of world and SACU exports. Export cover has been very poor.

(b) Television Picture Tubes (SIC 7761)

Significantly, SACU share of global imports is most significant for consumer electronics components such as TV tubes. In 1983 SACU's share was 1,25%, rising to almost 2% in 1984, subsequently dropping to 0,63% by 1987. SACU export shares were negligible (mostly replacement parts re-exported to Africa). As a share of SACU total imports, TV tubes varied from 0,1% to 0,15%. Export share and cover was also miniscule.

Figure B-12



(c) VCRs (SIC 76381)

SACU import share of VCRs also rose dramatically from 1981 to 1983-84, then dropped back by 1987. VCRs reached more than half a percentage point of SACU imports during the 83-84 period. SACU exports were negligible in relation to world exports and SACU total exports, but export cover fluctuated considerably, jumping to almost 30% during 1985. This was due to a sharp drop in imports rather than a rise in exports.

(d) Portable Radios (SIC 7622)

SACU share of global imports of portable radios fell over the 1980s from 1,26% to 0,15%. Share of global exports has been negligible. As a proportion of SACU imports and exports, portable radios have also declined. Export cover is practically non-existent.

(e) Phonographs (SIC 7631)

SACU import and export trends for these products were practically identical to that of portable radios throughout the 1980s.

(f) Microphones, Loudspeakers, and Amplifiers (SIC 762)

SACU shares of global imports of hi-fi and related equipment declined from a high of 1,57% in 1981 to 0,28% in 1986, then rose slightly. Imports also declined as a proportion

of SACU imports. Export shares were tiny, as were export shares, with the exception of 1985, again due to a rapid fall from 1983-84.

(3) Analysis

In most cases SACU shares of global trade were negligible during the 1980s. In some cases, however, such as cooking and heating equipment, VCRs, and TV tubes, SACU shares were more significant. SACU exports were insignificant globally, but were stronger in cooking and heating equipment and refrigerators than in other products. In no case were SACU shares of total global imports greater than 1%. Export cover has also been poor, although as might be expected it has improved in periods of domestic recession (such as 1985 onwards).

Table B-3: Production, Import and Export GrowthYear on Year Change, 1981-1991

FRIDGES AND FRIDGE/FREEZER COMBINATIONS							
Year		**1981**	**1982**	**1983**	**1984**	**1985**	**1986**
Production	% Change	-9,73%	-46,71%	-2,25%	97,70%	-15,12%	-12,95%
Imports	% Change	--	-35,40%	68,93%	-2,37%	-70,67%	-71,35%
Exports	% Change	--	-10,14%	-48,57%	-7,36%	28,45%	-88,17%
Year		**1987**	**1988**	**1989**	**1990**	**1991**	
Production	% Change	2,17%	13,40%	54,88%	1,93%	-2,47%	
Imports	% Change	13,95%	--	--	--	--	
Exports	% Change	811,63%	--	--	--	--	
WASHING MACHINES							
Year		**1981**	**1982**	**1983**	**1984**	**1985**	**1986**
Production	% Change	-17,02%	-14,10%	-7,46%	6,45%	-18,18%	10,72%
Imports	% Change	--	-64,86%	-7,15%	28,84%	-124,58%	49,71%
Exports	% Change	--	-375,0%	-6,67%	-59,57%	41,25%	-788%
Year		**1987**	**1988**	**1989**	**1990**	**1991**	
Production	% Change	-26,14%	17,03%	31,62%	60,70%	-20,51%	
Imports	% Change	12,08%	--	--	--	--	
Exports	% Change	-12,50%	--	--	--	--	
ELECTRIC STOVES							
Year		**1981**	**1982**	**1983**	**1984**	**1985**	**1986**
Production	% Change	52,66%	-35,44%	-4,41%	-3,08%	-20,11%	-2,59%
Imports	% Change	--	-18,63%	16536%	-25,91%	-28,18%	-93,76%
Exports	% Change	--	32,56%	-18,58%	5,52%	-8,41%	-23,56%
Year		**1987**	**1988**	**1989**	**1990**	**1991**	
Production	% Change	-0,79%	19,26%	2,22%	-9,45%	-2,79%	
Imports	% Change	24,03%	--	--	--	--	
Exports	% Change	5,70%	--	--	--	--	

From the foregoing it can be seen that SACU imports and exports of HEDs have been subject to considerable fluctuation, particularly during the 1983-85 period. This can be

explained by the relationship between domestic production, imports, exports and external and external macroeconomic fluctuations.

Table B-3 shows the year-on-year change in production, importation, and exportation of selected HEDs. From it emerges a general picture with the following features:

- Imports rose much more strongly than production in the 1983-1984 upturn. In the case of refrigerators, imports rose by almost 70% in 1983, whilst production fell. Production only rose strongly the following year. Imports also fell more strongly than production in the recession years of 1985-86. Imports also fluctuated wildly in the case of washing machines and EFS stoves, whilst production showed a distinct lag. *This suggests a much slower reaction time for domestic producers vis-a-vis imports. Should this trend continue, increased demand due to mass housing and/or electrification programmes may lead to imports on a far greater scale than suggested in Chapter Four.*
- In the case of EFS stoves, production continued to decline after the massive 1983 import increase of 1653%, suggesting that *over-imports in a brief upturn period reduced sales of domestically-produced products for several years.*
- Exports tended to fall strongly during the upturn and to rise again during downswings. This is to be expected, but the magnitude of the shifts suggests that *export performance may have been due more to attempts to reduce stocks and maintain throughput than to genuine competitiveness.* This is supported by interview sources who admit that exports did not become viable until the General Export Incentive Scheme was introduced in the early 1990s.

b) 1989-1991[19]

Exports and imports of specific items for 1988-1991 are listed on the chart following this page. A detailed breakdown of imports of HEDs is included in the Appendix to this chapter.

Overall, South Africa's imports of HEDs fell in real terms from R1,2bn in 1988 to just under R700m in 1991 (1990 Rands). Imports thus fell a total of 32%, for an annual average of -11%.

Export growth in most categories, however, has been strong, even in real terms. Overall, real exports grew by 56,5%, for an annual average of almost 17%. Much of this growth in exports is probably to be explained by the impact of domestic recession and export incentives.

(1) Domestic Appliances

In real terms, imports of all major domestic appliances fell over the period. Exports grew significantly in all products, but from very low bases. It is notable that export growth by value were strongest in products in which the South African industry is particularly weak, such as dishwashers (47%), washing machines (33%), and dryers (91%).

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[19] This section is based on Customs and Excise data for 1988-1991, as contained in annual and quarterly trade statistics.

(2) Consumer Electronics

Imports stagnated or fell in every category except televisions, which experienced an average import growth of 50,5% p.a. Exports of parts for consumer electronics products grew especially strongly — an unlikely scenario.

(3) Analysis

Total exports of HEDs and related equipment grew 56,5%% over the period 1988-91, at an average rate of 16,7%% p.a.; whilst imports fell by 32%. Import cover increased in all products except televisions, which saw this index drop by 45%. Most export increases, however, were from a very low base in rand terms. Where exports were already considerable, as in refrigerators, growth has been less spectacular: 14% 1988-91, at an average annual rate of under 5%.

Exports seem to have grown for a combination of reasons:

- As the local market has stagnated, local firms have sought to unload excess capacity and existing stock through export at — or below — cost.
- GEIS payments have stimulated exports, particularly of M-Net type decoders, which are presently exported to Europe by several television manufacturers. These firms consistently affirm that exports would not occur or be profitable without these subsidies.
- Structural adjustment programmes for the television industry, which penalise net foreign exchange usage, have encouraged spurious re-export of parts and kits to obtain both GEIS subsidies and reduced excise duties. At least one recent entrant to the television market is suspected of exporting sets to Malawi and re-importing them under a preferential trade agreement, gaining in both directions.

4. Prospects

a) Exports

In spite of limited export success, the South African HED industry is unlikely to become a major exporter *in the near future*. Indeed, although a great deal of emphasis has been placed on the need to attain international competitiveness, it is unlikely that even price competitiveness will allow exports into the global HED market.

1. Firstly, *South Africa is geographically isolated from major growth markets for these goods*, which are in Asia and potentially in Eastern Europe. This is not a significant barrier in the small appliance or audio market, but bulky low-value products such as televisions and white goods suffer significant transport disadvantages with distance. As the data presented in first part of this chapter shows, most trade in white goods in particular is intra-regional, dominated by Europe. To break into this market would require a major improvement in costs, quality, and performance. This is not impossible, but may not be a priority, given the prospect of mass housing and electrification programmes.

2. Secondly, *global HED markets are by and large replacement markets well-served by existing manufacturers, many of whom hold restrictive agreements with South African firms.* Again, to penetrate these markets, South African firms would have to become exceptionally low-cost producers of relatively sophisticated goods, a process which would be partly at cross-purposes to the needs of the domestic market. But more importantly, they would have to compete head-on with major, established firms who hold key brand names and technology licenses which restrict South African exports. Even highly competitive firms with in-house product technology such as New Zealand's Fisher & Paykel have found it difficult to make inroads into the European market for this reason (interview sources).

3. Thirdly, the trend in global markets for both consumer electronics and white goods, as we have seen, is for either increasing amalgamation of firms into larger units (white goods) or increasing concentration of production (consumer electronics). The centrality of brand name, R&D commitment, and marketing and supplier networks in such markets means that *small peripheral manufacturers such as South Africa's HED industry may be better off negotiate sourcing agreements with such firms, at least for the short run.*

4. Fourthly, *the technological backwardness of the South African HED industry does not augur well for its success in global markets whose main competitive point is rapid product development and associated manufacturing flexibility.* South African firms have and can learn much from manufacturing for the fragmented domestic market, which demands flexibility. Given this and the need to meet basic needs in the near future, an orientation towards the domestic market may serve as a good springboard into exports later.

5. Finally, in the absence of a near-miraculous economic turnaround, *the much-vaunted African market is unlikely to present a significant export opportunity.*

South African HED firms would certainly benefit from exports, and may have already. Nevertheless, for the foreseeable future exports will probably be a by-product of successful production in and for the domestic market rather than a conscious strategy to go global.

A good case in point is New Zealand's Fisher and Paykel. This firm was founded in 1934, and for most of its existence has serviced the tiny domestic New Zealand market, utilising a combination of high tariffs and restrictive marketing agreements with retailers. Exports began in earnest in the 1970s, but became a serious issue in the late 1980s when the Conservative government swept away import duties practically overnight. This forced F&P to expand its exports dramatically. This was not easy — in spite of a free trade agreement even the adjacent Australian market remained impenetrable given brand loyalties and marketing structures. F&P's strategy to achieve export success has been (i) to concentrate heavily on reorganisation of its manufacturing processes, both organisationally and through in-house development of flexible automation technologies; (ii) to develop equity links with European white goods manufacturers in order to gain access to niches within the continent's 380m market; and (iii) to move production offshore by setting up a plant in Brisbane. The point made very strongly by F&P is that these steps were only possible given its *prior* investment in major in-house capability in product and process design — and its unusually well-developed organisational practices, centred on a progressive works agreement with the

New Zealand Engineer's Union and others. In both respects, South African firms have far to go, as Chapter Five will argue.

b) Tariff Protection

The opinion in the local industry is that a minimum of 25% nominal net protection is needed to sustain production of most domestic appliances for the foreseeable future (interview sources; DAMSA 1991). It is claimed that this is due to the higher overheads resulting from a small local market and high local input costs.

It is hard to say what the future environment of international trade will be for the HED industry, as GATT may yet reclassify South Africa as a developing country, allowing a measure of infant-industry protection. The HED industry can hardly qualify as an infant industry, however; and ultimately the question of a future tariff structure must be considered in the light of both the potential costs and benefits of liberalisation and the possibilities of restructuring behind tariffs. These issues will be considered in Chapter Four and Chapter Five, respectively.

C. Summary and Conclusion

The main points arising from this chapter are as follows:

1. Global Trends

1. Global HED import shares have shifted towards Europe and the Americas, whilst export shares have shifted towards the Pacific Basin, and within it away from Japan and towards the NICs.
2. Global markets for HEDs are dominated by large multinationals who are getting larger, both through acquisition and merger (white goods) and through concentration of market share (consumer electronics).
3. Global markets for HEDs are basically saturated, and growth is through competition for market share, both through aggressive production rationalisation and new products. This requires significant R&D and marketing resources.
4. The best approach for smaller-country HED firms may be to form strategic alliances with such firms to obtain access to their strengths in market access, product design, and production technology. This is the only practical route for firms who lack the in-house capacities of successful niche marketers such as Fisher and Paykel.

2. South Africa's Trade in HEDs

1. South Africa is a minor player in world markets for HEDs, although our overall share of trade in consumer electronics is significant.

2. Imports of HEDs have fluctuated considerably and are presently decreasing, but have tended to be the main source of supply during periods of upswing such as 1983-84. This may suggest (i) rigidity in local production and an inability to react quickly; (ii) the impact of exchange rate fluctuations, which hurt domestic producers by cheapening imports and raising the cost of imported components; and/or (iii) dumping.

3. South African exports of HEDs have been negligible, but have increased recently for a number of reasons, most of which do not suggest increased competitiveness.

4. The tariff structure with respect to HEDs is generally straightforward. Average nominal tariffs for white goods and small appliances are about 30%, whilst those for consumer electronics are in the 90% range. Duties on parts are also about 30% for domestic appliances, but in the 20%-30% for consumer electronics — implying significantly higher effective rates of protection. Surcharges play an important role in protection in some cases.

World Trade Shares in Selected HEDs Including Southern African Customs Union Shares

Source: UNCTAD Yearooks of International Trade, 1987 and 1989

	Domestic Appliances (SIC 725)										
	IMPORTS	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987
	Africa	4,7	3,6	4,4	6,9	5,1	3,9	4,0	2,6	2,0	2,2
	Americas	19,1	17,9	18,4	20,7	20,4	23,4	28,6	31,4	28,1	24,5
	Asia	20,1	18,5	19,2	19,1	18,4	17,4	16,1	14,2	11,4	12,6
	Europe	53,3	57,7	55,6	50,3	52,7	51,9	47,5	48,5	56,1	58,7
	Oceana	2,6	2,5	2,5	2,8	3,4	3,3	3,7	3,4	2,6	2,2
	SACU	–	–	–	–	–	1,2%	1,2%	0,6%	0,6%	0,6%
	EXPORTS	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987
	Africa	0,0	0,0	0,0	0,1	0,0	0,0	0,0	0,0	0,0	0,0
	Americas	11,3	11,1	11,6	12,2	11,2	9,7	9,3	8,1	6,5	7,0
	Asia	17,2	15,5	20,9	26,0	24,7	29,0	35,8	35,7	30,1	28,0
	Europe	70,9	72,7	66,8	61,1	63,3	60,7	54,2	55,6	62,9	64,4
	SACU	–	–	–	–	–	0,03%	0,03%	0,03%	0,01%	0,01%
Rank '78	Top Ten Importers	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987
1	USA	11,3	9,7	9,2	10,5	12,1	16,2	20,9	23,8	21,2	18,0
3	France	8,9	10,2	9,7	8,9	9,2	8,7	7,6	7,9	9,8	10,7
4	UK	6,4	7,5	7,6	8,9	9,2	10,2	10,4	10,9	10,9	9,9
2	Germany (W.)	9,1	9,4	8,8	7,8	7,8	8,3	7,9	7,4	8,5	9,4
5	Netherlands	6,2	5,7	5,3	4,1	4,2	4,3	3,5	3,6	4,4	4,7
7	Canada	4,2	4,1	3,9	4,5	4,1	4,9	5,4	5,6	5,2	4,3
10	Hong Kong	1,5	1,3	1,6	2,0	1,8	2,1	2,5	3,4	2,3	3,3
6	Belgium/Luxembourg	5,1	5,1	4,8	4,0	3,6	3,2	2,6	2,6	3,1	3,1
9	Italy	2,0	2,6	3,0	2,9	2,9	2,5	2,5	2,5	2,9	2,9
8	Saudi Arabia	4,0	4,4	4,3	4,8	5,8	5,0	4,8	2,9	1,8	1,8
	TOTAL	58,7	60,0	58,2	58,4	60,7	65,4	68,1	70,6	70,1	68,1
Rank '78	Top Ten Exporters	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987
1	Germany (W.)	20,8	21,1	20,5	17,3	18,0	16,7	14,9	16,4	19,8	19,5
2	Italy	17,0	18,1	12,5	15,3	16,1	16,4	14,4	14,3	15,6	15,4
3	Japan	12,4	9,8	12,3	15,0	13,9	17,1	20,3	21,0	16,0	11,6
9	Hong Kong	2,7	3,4	5,0	6,6	6,2	6,7	8,5	8,5	6,5	7,1
10	South Korea	0,3	0,4	0,8	1,2	1,5	2,2	3,7	3,4	5,2	6,5
5	France	8,6	8,9	8,3	6,6	7,0	6,2	5,9	6,0	6,7	6,2
4	USA	9,6	9,0	9,4	9,8	8,7	7,6	7,3	6,2	4,9	5,4
6	UK	5,3	4,7	5,0	3,6	3,2	2,8	2,3	2,5	2,5	3,1
7	Netherlands	4,6	4,6	4,3	3,8	3,9	3,6	2,9	2,9	3,2	3,1
8	Sweden	3,5	3,8	3,4	2,7	2,8	3,1	2,8	2,8	3,2	3,0
	TOTAL	84,8	83,8	81,5	81,9	81,3	82,4	83,0	84,0	83,6	80,9

	Television Recievers (SIC 761)										
	IMPORTS	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987
	Africa	4,7	4,3	5,3	3,1	4,3	2,1	1,9	1,6	1,5	2,7
	Americas	31,2	24,1	27,5	33,7	29,5	32,0	39,0	39,7	36,8	29,6
	Asia	12,4	16,5	18,2	20,9	20,0	19,9	16,6	16,7	12,5	14,3
	Europe	49,7	53,6	47,6	40,5	44,5	44,5	40,8	40,6	47,9	52,1
	Oceana	2,0	1,5	1,3	1,7	1,7	1,6	1,8	1,4	1,3	1,4
	SACU	–	–	–	–	–	–	–	–	–	–
	EXPORTS	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987
	Africa	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,1	0,1	0,1
	Americas	8,1	7,3	10,7	10,0	8,3	6,5	6,7	6,2	5,2	7,3
	Asia	42,5	41,5	45,2	54,9	52,9	57,1	62,6	65,8	54,1	50,9
	Europe	49,3	51,1	44,0	35,1	38,8	36,4	30,7	27,9	40,6	41,7
	Oceana	0,1	0,1	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0
	SACU	–	–	–	–	–	0,009%	0,004%	0,007%	0,003%	0,001%
Rank '78	Top Ten Importers	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987
1	USA	23,1	15,8	12,4	14,7	14,4	24,1	31,2	32,2	30,6	21,1
3	Germany (W.)	8,3	8,2	7,7	6,3	7,8	8,2	7,4	6,5	8,5	10,2
4	Italy	6,9	10,3	9,0	6,2	7,4	7,0	6,6	7,7	8,1	8,1
5	France	4,9	4,4	4,4	4,6	4,4	3,2	3,5	4,1	6,5	7,0
7	UK	4,1	5,6	4,4	6,3	7,1	8,6	7,1	5,7	6,0	5,2
2	Netherlands	8,4	7,2	6,3	4,8	4,6	4,5	4,1	4,3	4,6	5,0
9	Hong Kong	2,2	3,0	3,2	4,8	2,1	2,1	2,7	5,5	3,2	4,1
6	Canada	4,5	4,4	2,8	4,1	3,9	5,6	5,9	4,9	4,2	3,2
10	Singapore	1,6	1,3	1,6	1,9	2,2	2,6	2,7	3,0	2,7	2,9
8	Saudi Arabia	2,7	3,9	3,5	3,8	4,3	4,1	3,5	2,1	1,8	2,0
	TOTAL	66,7	64,1	55,3	57,5	58,2	70,0	74,7	76,0	76,2	68,8
Rank '78	Top Ten Exporters	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987
1	Japan	31,8	29,1	30,6	35,8	35,3	35,6	40,6	46,0	30,1	20,2
5	South Korea	5,4	6,6	7,4	8,8	8,3	11,9	13,2	9,7	12,6	14,8
2	Germany (W.)	19,3	22,0	19,6	16,4	17,2	15,0	11,9	10,5	15,3	11,8
6	Singapore	4,5	4,1	4,7	6,0	6,3	6,2	5,0	5,0	6,6	7,6
4	Belgium/Luxembourg	6,9	6,4	5,4	3,9	4,3	4,4	3,7	3,3	4,9	6,5
7	UK	2,7	2,8	3,0	2,0	2,2	2,0	2,5	2,6	3,6	4,5
10	Hong Kong	0,1	0,7	1,6	3,3	1,7	1,9	2,6	4,0	3,1	4,4
3	USA	7,1	6,5	8,7	8,0	5,7	4,5	4,7	4,0	4,3	3,9
8	Italy	2,1	2,0	3,1	2,4	2,7	2,7	1,8	2,1	3,4	3,9
9	Finland	1,6	2,1	2,1	1,7	2,0	2,1	1,9	1,6	2,9	3,0
	TOTAL	81,5	82,3	86,2	88,3	85,7	86,3	87,9	88,8	86,8	80,6

	Radio Broadcast Receivers (SIC 762)										
	IMPORTS	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987
	Africa	2,6	2,7	5,8	4,2	4,1	1,6	1,5	1,0	1,0	1,1
	Americas	43,6	38,8	34,2	42,7	42,0	46,3	54,6	56,2	46,3	44,9
	Asia	11,8	13,3	16,5	14,0	14,7	16,4	13,5	11,8	14,3	15,4
	Europe	40,2	42,9	41,4	36,8	36,6	33,9	28,1	28,9	36,6	36,8
	Oceana	1,9	2,2	2,1	2,3	2,5	1,9	2,3	2,1	1,7	1,7
	SACU	–	–	–	–	–	0,41%	0,56%	0,26%	0,25%	0,34%
	EXPORTS	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987
	Africa	0,1	0,3	0,1	0,0	0,0	0,0	0,0	0,0	0,0	0,0
	Americas	5,5	5,2	4,3	5,1	6,9	8,9	11,1	11,7	9,9	14,0
	Asia	75,4	76,4	79,9	82,3	78,9	78,5	78,5	75,5	73,2	70,6
	Europe	19,0	18,1	15,5	12,5	14,1	12,5	10,4	12,6	16,9	15,3
	Oceana	0,1	0,1	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0
	SACU	–	–	–	–	–	–	–	–	–	–
Rank '78	Top Ten Importers	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987
1	USA	36,9	31,6	25,8	33,2	35,2	39,6	44,3	47,7	40,4	38,6
2	Germany (W.)	10,0	9,3	9,5	8,6	8,4	8,8	7,4	7,0	8,6	8,3
3	UK	6,4	8,8	6,7	7,0	6,2	6,1	5,4	6,1	7,1	6,8
10	Hong Kong	0,7	1,9	3,3	3,2	2,9	3,1	3,4	3,7	4,7	6,0
4	France	5,2	5,9	5,5	4,5	5,2	4,6	3,3	3,2	4,2	4,2
6	Canada	3,3	3,1	3,0	4,2	4,0	4,9	6,1	5,7	4,6	3,4
8	Singapore	2,1	2,1	3,5	2,9	2,8	3,5	3,0	2,6	3,2	3,1
9	Switzerland	2,0	2,1	4,5	3,6	3,9	3,4	2,8	2,5	3,2	3,1
7	Italy	2,2	2,6	3,0	3,2	3,2	2,0	1,9	2,0	2,3	3,0
5	Netherlands	4,6	3,8	3,2	2,5	2,3	2,3	1,7	1,8	2,6	2,7
	TOTAL	73,4	71,2	68,0	72,9	74,1	78,3	79,3	82,3	80,9	79,2
Rank '87	Top Ten Exporters	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987
1	Japan	54,8	48,5	48,9	53,3	48,5	47,7	46,2	45,6	40,2	28,4
5	South Korea	3,8	5,5	4,7	5,7	6,0	7,5	8,9	8,6	10,4	13,8
2	Hong Kong	10,5	13,1	13,7	12,6	13,4	11,1	11,6	9,2	9,8	12,3
4	Singapore	5,0	7,3	10,5	9,5	9,1	8,9	8,7	8,5	8,4	10,3
9	Malaysia	0,3	0,7	0,7	0,7	1,1	2,0	2,3	3,0	3,7	5,3
8	Brazil	2,1	1,5	0,9	1,3	1,5	1,6	2,3	2,6	5,3	5,3
10	Mexico	0,0	0,0	0,0	0,2	0,8	3,1	4,0	3,7	4,0	5,1
3	Germany (W.)	6,5	5,8	4,6	3,7	4,1	3,9	3,4	3,9	5,0	4,7
6	Belgium/Luxembourg	2,7	3,3	2,8	2,4	2,0	1,5	1,1	1,7	3,5	3,1
7	USA	2,4	2,3	2,2	2,7	3,0	2,5	3,1	3,8	3,1	2,9
	TOTAL	88,1	88,0	89,0	92,1	89,5	89,8	91,6	90,6	93,4	91,2

	Sound Recorders and Phonographs (SIC763)										
	IMPORTS	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987
	Africa	3,7	2,1	2,9	3,8	2,3	2,0	1,8	0,9	0,8	1,0
	Americas	39,6	34,7	31,6	35,1	33,3	36,9	49,1	57,3	52,6	43,1
	Asia	12,8	14,5	16,7	14,5	13,8	14,5	12,9	9,7	8,8	11,4
	Europe	41,7	46,2	46,4	43,8	47,3	42,5	32,6	29,9	35,7	42,4
	Oceana	2,3	2,5	2,3	2,9	3,3	4,1	3,6	2,2	2,1	2,0
	SACU	–	–	–	–	–	0,41%	0,56%	0,26%	0,25%	0,34%
	EXPORTS	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987
	Africa	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,1	0,0	0,0
	Americas	5,7	6,3	6,5	5,4	4,8	2,7	2,5	3,3	2,7	2,8
	Asia	65,0	67,5	74,0	81,9	82,1	86,2	87,0	84,1	81,7	78,4
	Europe	29,3	26,1	19,4	12,7	13,0	11,0	10,5	12,5	15,7	18,7
	Oceana	0,0	0,1	0,1	0,0	0,0	0,0	0,0	0,0	0,0	0,0
	SACU	–	–	–	–	–	–	–	–	–	–
Rank '78	Top Ten Importers	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987
1	USA	34,7	29,0	24,8	28,1	26,8	32,3	43,9	52,7	48,2	38,3
2	Germany (W.)	11,3	11,9	12,0	10,2	9,9	10,4	8,5	7,0	7,6	9,1
5	UK	5,7	7,6	8,3	10,8	14,5	12,7	7,0	7,1	6,3	7,2
3	France	6,4	7,6	6,8	5,9	6,9	4,8	3,9	3,4	4,8	5,6
6	Italy	2,0	2,8	3,1	2,6	2,3	1,7	1,6	1,9	3,3	4,5
4	Netherlands	5,8	4,8	4,2	3,0	3,1	3,3	2,9	2,8	3,4	3,5
9	Hong Kong	1,6	1,7	1,8	1,7	1,8	2,1	3,8	3,0	2,4	3,1
10	Singapore	1,3	1,5	2,6	3,0	3,5	3,5	2,8	2,1	2,2	2,9
7	Canada	2,0	2,2	1,9	2,2	2,6	3,6	4,5	3,3	3,0	2,3
8	Australia	1,9	1,9	1,9	2,4	2,9	3,5	2,9	1,9	1,4	1,4
	TOTAL	72,7	71,0	67,4	69,9	74,3	77,9	81,8	85,2	82,6	77,9
Rank '78	Top Ten Exporters	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987
1	Japan	58,3	60,2	67,0	75,8	76,1	80,8	81,1	77,1	72,3	63,5
6	South Korea	3,9	3,8	2,4	2,0	1,9	1,6	1,4	3,0	5,4	8,9
3	Germany (W.)	6,3	5,8	4,8	3,2	4,3	3,9	4,3	5,5	7,2	8,4
2	UK	6,6	5,0	3,3	1,9	1,7	1,4	1,8	2,0	2,1	2,8
10	Singapore	0,9	0,9	1,9	1,7	1,7	1,8	1,9	1,5	1,5	2,7
5	USA	5,5	5,9	5,7	5,0	4,3	2,5	2,3	3,1	2,3	2,7
9	Hong Kong	1,5	2,0	2,0	1,9	1,8	1,7	2,2	2,3	2,2	2,6
4	Austria	5,5	4,3	2,9	2,4	2,5	1,4	1,1	1,2	1,6	2,1
8	Belgium/Luxembourg	2,6	2,7	2,6	1,8	1,3	1,3	1,1	1,1	1,9	1,6
7	Netherlands	3,1	2,8	1,9	1,1	0,9	0,9	0,7	1,2	1,2	1,4
	TOTAL	94,2	93,4	94,5	96,8	96,5	97,3	97,9	98,0	97,7	96,7

SACU Trade Shares of Selected HEDs 1981-1987

Source: **UNCTAD Yearbooks of International Trade, 1987, 1989**

Notes: 1. All figures in thousands of current US Dollars
2. "World Total" refers to total global imports or exports of that commodity. "SACU Imports/Exports" refers to SACU imports/exports of that commodity. "Total SACU Imports and Exports" refers to Merchandise only (i.e excluding gold).

WHITE GOODS

Domestic Heating and Cooking Apparati (SIC 6973)

IMPORTS (In Top 10)	1981	1982	1983	1984	1985	1986	1987
World Total	R1 467 341	R1 606 855	R1 338 766	R1 201 931	R1 214 674	R1 293 504	R1 462 350
SACU Imports	R7 981	R6 494	R113 870	R84 371	R60 596	R3 782	R4 691
SACU Share	0,54%	0,40%	8,51%	7,02%	4,99%	0,29%	0,32%
Total SACU Imports	R21 077 408	R16 971 399	R14 527 697	R14 955 789	R10 319 196	--	--
SIC 6973 Share	0,04%	0,04%	0,78%	0,56%	0,59%	--	--
EXPORTS	**1981**	**1982**	**1983**	**1984**	**1985**	**1986**	**1987**
World Total	R1 335 357	R1 465 302	R1 076 490	R977 195	R1 035 951	R1 172 697	R1 273 451
SACU Exports	R1 628	R2 158	R1 757	R1 854	R1 698	R1 298	R1 372
SACU Share	0,12%	0,15%	0,16%	0,19%	0,16%	0,11%	0,11%
Total SACU Exports	R11 016 245	R9 634 863	R9 649 145	R9 427 795	R9 372 122	--	--
SIC 6973 Share	0,0148%	0,0224%	0,0182%	0,0197%	0,0181%	--	--
Exports/Imports	20,40%	33,23%	1,54%	2,20%	2,80%	34,32%	29,25%

Domestic Refrigerators (SIC 77521)

IMPORTS	1981	1982	1983	1984	1985	1986	1987
World Total	R1 652 441	R1 521 456	R1 387 291	R1 382 558	R1 167 582	R1 417 578	R1 861 438
SACU Imports	R24 897	R16 084	R27 171	R26 528	R7 781	R2 229	R2 540
SACU Share	1,51%	1,06%	1,96%	1,92%	0,67%	0,16%	0,14%
Total SACU Imports	R21 077 408	R16 971 399	R14 527 697	R14 955 789	R10 319 196	--	--
SIC 6973 Share	0,12%	0,09%	0,19%	0,18%	0,08%	--	--
EXPORTS	**1981**	**1982**	**1983**	**1984**	**1985**	**1986**	**1987**
World Total	R1 370 208	R1 225 051	R1 196 419	R1 199 052	R1 217 067	R1 380 344	R1 967 481
SACU Exports	R1 322	R1 188	R611	R566	R727	R86	R784
SACU Share	0,10%	0,10%	0,05%	0,05%	0,06%	0,01%	0,04%
Total SACU Exports	R11 016 245	R9 634 863	R9 649 145	R9 427 795	R9 372 122	--	--
SIC 6973 Share	0,0120%	0,0123%	0,0063%	0,0060%	0,0078%	--	--
Exports/Imports	5,31%	7,39%	2,25%	2,13%	9,34%	3,86%	30,87%

Household Laundry Equipment NES (SIC 7751)

IMPORTS	1981	1982	1983	1984	1985	1986	1987
World Total	R1 254 965	R1 115 349	R1 153 824	R1 115 526	R1 119 336	R1 592 810	R2 087 670
SACU Imports	R19 420	R12 173	R10 186	R14 315	R6 374	R13 512	R15 681
SACU Share	1,55%	1,09%	0,88%	1,28%	0,57%	0,85%	0,75%
Total SACU Imports	R21 077 408	R16 971 399	R14 527 697	R14 955 789	R10 319 196	--	--
SIC 7751 Share	0,0921%	0,0717%	0,0701%	0,0957%	0,0618%	--	--
EXPORTS	**1981**	**1982**	**1983**	**1984**	**1985**	**1986**	**1987**
World Total	R1 218 301	R1 111 257	R1 096 919	R1 075 956	R1 167 290	R1 557 052	R2 081 643
SACU Exports	R380	R85	R75	R47	R80	R9	R9
SACU Share	0,0312%	0,0076%	0,0068%	0,0044%	0,0069%	0,0006%	0,0004%
Total SACU Exports	R11 016 245	R9 634 863	R9 649 145	R9 427 795	R9 372 122	--	--
SIC 7751 Share	0,0034%	0,0009%	0,0008%	0,0005%	0,0009%	--	--
Exports/Imports	1,96%	0,70%	0,74%	0,33%	1,26%	0,07%	0,06%

Domestic Washing Machines (SIC 77511)							
IMPORTS	**1981**	**1982**	**1983**	**1984**	**1985**	**1986**	**1987**
World Total	R1 141 554	R1 024 033	R1 057 546	R1 019 742	R1 002 812	R1 412 843	R1 788 883
SACU Imports	R17 993	R10 914	R10 186	R14 315	R6 374	R12 675	R14 417
SACU Share	1,58%	1,07%	0,96%	1,40%	0,64%	0,90%	0,81%
Total SACU Imports	R21 077 408	R16 971 399	R14 527 697	R14 955 789	R10 319 196	--	--
SIC 77511 Share	0,0854%	0,0643%	0,0701%	0,0957%	0,0618%	--	--
EXPORTS	**1981**	**1982**	**1983**	**1984**	**1985**	**1986**	**1987**
World Total	R1 100 363	R999 369	R993 047	R969 619	R1 044 410	R1 354 876	R1 759 100
SACU Exports	R380	R80	R75	R47	R80	R9	R8
SACU Share	0,0345%	0,0080%	0,0076%	0,0048%	0,0077%	0,0007%	0,0005%
Total SACU Exports	R11 016 245	R9 634 863	R9 649 145	R9 427 795	R9 372 122	--	--
SIC 77511 Share	0,0034%	0,0008%	0,0008%	0,0005%	0,0009%	--	--
Exports/Imports	2,11%	0,73%	0,74%	0,33%	1,26%	0,07%	0,06%

CONSUMER ELECTRONICS

Colour Televisions (SIC 7611)							
IMPORTS	**1981**	**1982**	**1983**	**1984**	**1985**	**1986**	**1987**
World Total	R3 398 300	R3 315 129	R3 640 750	R4 015 708	R4 073 401	R5 489 861	R7 170 936
SACU Imports	R934	R2 906	R3 322	R5 110	R2 890	R7 955	R12 413
SACU Share	0,03%	0,09%	0,09%	0,13%	0,07%	0,14%	0,17%
Total SACU Imports	R21 077 408	R16 971 399	R14 527 697	R14 955 789	R10 319 196	--	--
SIC 7611 Share	0,0044%	0,0171%	0,0229%	0,0342%	0,0280%	--	--
EXPORTS	**1981**	**1982**	**1983**	**1984**	**1985**	**1986**	**1987**
World Total	R3 934 708	R3 533 661	R3 707 387	R4 478 309	R5 295 134	R5 527 264	R7 076 150
SACU Exports	R162	R416	R432	R206	R454	R129	R39
SACU Share	0,0041%	0,0118%	0,0117%	0,0046%	0,0086%	0,0023%	0,0006%
Total SACU Exports	R11 016 245	R9 634 863	R9 649 145	R9 427 795	R9 372 122	--	--
SIC 7611 Share	0,0015%	0,0043%	0,0045%	0,0022%	0,0048%	--	--
Exports/Imports	17,34%	14,32%	13,00%	4,03%	15,71%	1,62%	0,31%

TV Picture Tubes (SIC 7761)							
IMPORTS	**1981**	**1982**	**1983**	**1984**	**1985**	**1986**	**1987**
World Total	R1 413 387	R1 162 713	R1 232 333	R1 318 538	R1 511 437	R1 924 594	R2 253 671
SACU Imports	--	--	R15 441	R23 555	R10 457	R8 409	R14 188
SACU Share	--	--	1,25%	1,79%	0,69%	0,44%	0,63%
Total SACU Imports	R21 077 408	R16 971 399	R14 527 697	R14 955 789	R10 319 196	--	--
SIC 7761 Share	--	--	0,1063%	0,1575%	0,1013%	--	--
EXPORTS	**1981**	**1982**	**1983**	**1984**	**1985**	**1986**	**1987**
World Total	R1 445 460	R1 162 149	R1 279 463	R1 427 071	R1 667 478	R2 098 047	R2 625 665
SACU Exports	R14	R35	R95	R3	R68	R2	R6
SACU Share	0,0010%	0,0030%	0,0074%	0,0002%	0,0041%	0,0001%	0,0002%
Total SACU Exports	R11 016 245	R9 634 863	R9 649 145	R9 427 795	R9 372 122	--	--
SIC 7761 Share	0,0001%	0,0004%	0,0010%	0,0000%	0,0007%	--	--
Exports/Imports	--	--	0,62%	0,01%	0,65%	0,02%	0,04%

TV Image and Sound Recorders (VCRs) (SIC 76381)							
IMPORTS	**1981**	**1982**	**1983**	**1984**	**1985**	**1986**	**1987**
World Total	R3 687 971	R4 828 270	R5 732 159	R6 801 551	R8 107 038	R9 582 868	R8 928 930
SACU Imports	--	R21 009	R85 787	R81 078	R18 770	R37 802	R31 711
SACU Share	0,00%	0,44%	1,50%	1,19%	0,23%	0,39%	0,36%
Total SACU Imports	R21 077 408	R16 971 399	R14 527 697	R14 955 789	R10 319 196	--	--
SIC 76381 Share	--	0,12%	0,59%	0,54%	0,18%	--	--
EXPORTS	**1981**	**1982**	**1983**	**1984**	**1985**	**1986**	**1987**
World Total	R4 322 998	R495 630	R5 974 802	R7 854 757	R8 200 525	R9 822 581	R8 948 883
SACU Exports	--	R31	R470	R4 190	R5 617	R145	R96
SACU Share	--	0,0063%	0,0079%	0,0533%	0,0685%	0,0015%	0,0011%
Total SACU Exports	R11 016 245	R9 634 863	R9 649 145	R9 427 795	R9 372 122	--	--
SIC 76381 Share	--	0,0003%	0,0049%	0,0444%	0,0599%	--	--
Exports/Imports	--	0,15%	0,55%	5,17%	29,93%	0,38%	0,30%

Portable Radio Receivers (SIC 7622)							
IMPORTS	**1981**	**1982**	**1983**	**1984**	**1985**	**1986**	**1987**
World Total	R2 220 876	R1 944 776	R2 004 395	R2 192 050	R2 204 944	R2 594 886	R3 398 382
SACU Imports	R28 058	R19 475	R3 748	R7 091	R4 155	R6 688	R5 207
SACU Share	1,26%	1,00%	0,19%	0,32%	0,19%	0,26%	0,15%
Total SACU Imports	R21 077 408	R16 971 399	R14 527 697	R14 955 789	R10 319 196	--	--
SIC 7622 Share	0,1331%	0,1148%	0,0258%	0,0474%	0,0403%	--	--
EXPORTS	**1981**	**1982**	**1983**	**1984**	**1985**	**1986**	**1987**
World Total	R2 730 611	R222 860	R2 195 283	R2 593 908	R2 448 629	R2 627 139	R3 093 639
SACU Exports	R118	R376	R149	R21	--	R3	R2
SACU Share	0,0043%	0,1687%	0,0068%	0,0008%	--	0,0001%	0,0001%
Total SACU Exports	R11 016 245	R9 634 863	R9 649 145	R9 427 795	R9 372 122	--	--
SIC 7622 Share	0,0011%	0,0039%	0,0015%	0,0002%	0,0000%	--	--
Exports/Imports	0,42%	1,93%	3,98%	0,30%	--	0,04%	0,04%

Electric Gramophones (SIC 7631)							
IMPORTS	**1981**	**1982**	**1983**	**1984**	**1985**	**1986**	**1987**
World Total	R686 073	R512 493	R557 002	R582 547	R847 003	R1 497 689	R1 637 766
SACU Imports	R10 429	R3 932	R4 740	R4 967	R1 233	R1 114	R1 508
SACU Share	1,52%	0,77%	0,85%	0,85%	0,15%	0,07%	0,09%
Total SACU Imports	R21 077 408	R16 971 399	R14 527 697	R14 955 789	R10 319 196	--	--
SIC 7631 Share	0,0495%	0,0232%	0,0326%	0,0332%	0,0119%	--	--
EXPORTS	**1981**	**1982**	**1983**	**1984**	**1985**	**1986**	**1987**
World Total	R722 106	R478 723	R516 597	R474 095	R463 646	R614 726	R612 332
SACU Exports	R78	R4	R130	R64	R9	R8	R9
SACU Share	0,0108%	0,0008%	0,0252%	0,0135%	0,0019%	0,0013%	0,0015%
Total SACU Exports	R11 016 245	R9 634 863	R9 649 145	R9 427 795	R9 372 122	--	--
SIC 7631 Share	0,0007%	0,0000%	0,0013%	0,0007%	0,0001%	--	--
Exports/Imports	0,75%	0,10%	2,74%	1,29%	0,73%	0,72%	0,60%

Microphones, Loudspeakers, and Amplifiers (SIC 7642)							
IMPORTS	**1981**	**1982**	**1983**	**1984**	**1985**	**1986**	**1987**
World Total	R2 288 928	R1 914 340	R1 825 517	R1 941 819	R2 067 395	R2 515 730	R3 245 036
SACU Imports	R36 025	R21 159	R18 247	R24 011	R7 784	R6 987	R15 372
SACU Share	1,57%	1,11%	1,00%	1,24%	0,38%	0,28%	0,47%
Total SACU Imports	R21 077 408	R16 971 399	R14 527 697	R14 955 789	R10 319 196	--	--
SIC 7642 Share	0,1709%	0,1247%	0,1256%	0,1605%	0,0754%	--	--
EXPORTS	**1981**	**1982**	**1983**	**1984**	**1985**	**1986**	**1987**
World Total	R2 111 493	R1 549 182	R1 588 429	R1 705 309	R1 729 385	R2 152 151	R2 574 081
SACU Exports	R153	R189	R1 065	R1 159	R1 193	R36	R53
SACU Share	0,0072%	0,0122%	0,0670%	0,0680%	0,0690%	0,0017%	0,0021%
Total SACU Exports	R11 016 245	R9 634 863	R9 649 145	R9 427 795	R9 372 122	--	--
SIC 7642 Share	0,0014%	0,0020%	0,0110%	0,0123%	0,0127%	--	--
Exports/Imports	0,42%	0,89%	5,84%	4,83%	15,33%	0,52%	0,34%

EXPORTS AND IMPORTS OF HEDs AND RELATED EQUIPMENT

SOURCE: TRADE STATISTICS FOR CALENDAR YEARS 1989 AND 1990, AND
MONTHLY BULLETIN OF TRADE STATISTICS, JANUARY 1992. ALL FIGURES IN
CURRENT PRICES
NOTE: FIGURES ARE INFLATED DUE TO INCLUSION OF INDUSTRIAL MACHINERY OF A SIMILAR TYPE

PPI	74,2	88,9	100,0	108,9	
DOMESTIC APPLIANCES					
	1988	1989	1990	1991	% GROWTH
REFRIGERATORS					1988-91
exports	13 173 122	18 133 745	18 929 399	22 042 101	67,33%
1990 Rands	17 753 534	20 397 913	18 929 399	20 240 680	14,01%
Avg. Growth P.A.		14,89%	-7,20%	6,93%	4,87%
imports	107 510 365	117 601 371	101 681 706	124 063 367	15,40%
1990 Rands	144 892 675	132 285 007	101 681 706	113 924 120	-21,37%
Avg. Growth P.A.		-8,70%	-23,13%	12,04%	-6,60%
X/M%	12,25%	15,42%	18,62%	17,77%	45,00%
Avg. Growth P.A.		25,85%	20,73%	-4,56%	14,00%
DISHWASHERS					
exports	4 218 101	6 854 578	5 668 062	9 110 460	115,98%
1990 Rands	5 684 772	7 710 436	5 668 062	8 365 895	47,16%
Avg. Growth P.A.		35,63%	-26,49%	47,60%	18,91%
imports	152 565 356	167 212 559	211 335 146	178 946 304	17,29%
1990 Rands	205 613 687	188 090 618	211 335 146	164 321 675	-20,08%
Avg. Growth P.A.		-8,52%	12,36%	-22,25%	-6,14%
X/M%	2,76%	4,10%	2,68%	5,09%	84,14%
Avg. Growth P.A.		48,27%	-34,57%	89,83%	34,51%
WASHING MACHINES					
exports	523 711	1 095 490	1 545 119	1 667 472	218,40%
1990 Rands	705 810	1 232 272	1 545 119	1 531 196	116,94%
Avg. Growth P.A.		74,59%	25,39%	-0,90%	33,03%
imports	56 271 595	36 541 883	65 376 631	65 855 228	17,03%
1990 Rands	75 837 729	41 104 480	65 376 631	60 473 120	-20,26%
Avg. Growth P.A.		-45,80%	59,05%	-7,50%	1,92%
X/M%	0,93%	3,00%	2,36%	2,53%	172,06%
Avg. Growth P.A.		222,12%	-21,16%	7,13%	69,36%
CLOTHES DRYERS					
exports	663 451	3 327 982	3 124 244	2 406 089	262,66%
1990 Rands	894 139	3 743 512	3 124 244	2 209 448	147,10%
Avg. Growth P.A.		318,67%	-16,54%	-29,28%	90,95%
imports	77 166 330	80 373 828	102 131 816	46 365 189	-39,92%
1990 Rands	103 997 749	90 409 255	102 131 816	42 575 931	-59,06%
Avg. Growth P.A.		-13,07%	12,97%	-58,31%	-19,47%
X/M%	0,86%	4,14%	3,06%	5,19%	503,59%
Avg. Growth P.A.		381,60%	-26,12%	69,64%	141,71%
STOVES AND SMALLS					
exports	4 730 478	8 519 929	9 776 386	12 319 953	160,44%
1990 Rands	6 375 307	9 583 722	9 776 386	11 313 088	77,45%
Avg. Growth P.A.		50,33%	2,01%	15,72%	22,68%
imports	196 171 153	124 181 777	121 319 410	132 106 578	-32,66%
1990 Rands	264 381 608	139 687 038	121 319 410	121 309 989	-54,12%
Avg. Growth P.A.		-47,16%	-13,15%	-0,01%	-20,11%
X/M%	2,41%	6,86%	8,06%	9,33%	286,74%
Avg. Growth P.A.		184,52%	17,45%	15,73%	72,57%

CONSUMER ELECTRONICS					
HI-FI EQUIPMENT					
exports	1 379 562	1 636 233	4 120 745	5 693 994	312,74%
1990 Rands	1 859 248	1 840 532	4 120 745	5 228 645	181,22%
Avg. Growth P.A.		-1,01%	123,89%	26,89%	49,92%
imports	120 485 856	105 891 884	131 007 552	135 917 060	12,81%
1990 Rands	162 379 860	119 113 480	131 007 552	124 809 054	-23,14%
Avg. Growth P.A.		-26,65%	9,99%	-4,73%	-7,13%
X/M%	1,14%	1,55%	3,15%	4,19%	265,88%
Avg. Growth P.A.		34,95%	103,56%	33,19%	57,23%
VCRs					
exports	1 825 871	1 966 697	1 768 331	1 374 745	-24,71%
1990 Rands	2 460 743	2 212 258	1 768 331	1 262 392	-48,70%
Avg. Growth P.A.		-10,10%	-20,07%	-28,61%	-19,59%
imports	88 588 467	39 462 028	54 723 776	57 379 694	-35,23%
1990 Rands	119 391 465	44 389 233	54 723 776	52 690 261	-55,87%
Avg. Growth P.A.		-62,82%	23,28%	-3,72%	-14,42%
X/M%	2,06%	4,98%	3,23%	2,40%	16,24%
Avg. Growth P.A.		141,80%	-35,16%	-25,86%	26,93%
HI-FI AND VIDEO PARTS					
exports	161 283	246 185	457 990	1 017 105	530,63%
1990 Rands	217 363	276 924	457 990	933 981	329,69%
Avg. Growth P.A.		27,40%	65,39%	103,93%	65,57%
imports	13 251 770	17 648 623	18 899 206	15 834 853	19,49%
1990 Rands	17 859 528	19 852 219	18 899 206	14 540 728	-18,58%
Avg. Growth P.A.		11,16%	-4,80%	-23,06%	-5,57%
X/M%	1,22%	1,39%	2,42%	6,42%	427,76%
Avg. Growth P.A.		14,61%	73,72%	165,06%	84,47%
RADIOS OF ALL TYPES					
exports	415 123	1 162 638	3 706 753	2 897 108	597,89%
1990 Rands	559 465	1 307 804	3 706 753	2 660 338	375,51%
Avg. Growth P.A.		133,76%	183,43%	-28,23%	96,32%
imports	145 276 932	76 923 251	117 952 132	139 172 692	-4,20%
1990 Rands	195 791 013	86 527 841	117 952 132	127 798 615	-34,73%
Avg. Growth P.A.		-55,81%	36,32%	8,35%	-3,71%
X/M%	0,29%	1,51%	3,14%	2,08%	628,50%
Avg. Growth P.A.		428,94%	107,92%	-33,76%	167,70%
TELEVISIONS					
exports	1 029 510	1 484 178	1 403 353	2 172 294	111,00%
1990 Rands	1 387 480	1 669 492	1 403 353	1 994 760	43,77%
Avg. Growth P.A.		20,33%	-15,94%	42,14%	15,51%
imports	16 850 545	49 454 891	56 779 107	64 499 489	282,77%
1990 Rands	22 709 629	55 629 799	56 779 107	59 228 181	160,81%
Avg. Growth P.A.		144,96%	2,07%	4,31%	50,45%
X/M%	6,11%	3,00%	2,47%	3,37%	-44,88%
Avg. Growth P.A.		-50,88%	-17,64%	36,26%	-10,75%
TELEVISION PARTS					
exports	1 032 103	1 984 698	4 352 445	6 267 789	507,28%
1990 Rands	1 390 974	2 232 506	4 352 445	5 755 545	313,78%
Avg. Growth P.A.		60,50%	94,96%	32,24%	62,56%
imports	99 085 421	119 493 856	101 767 830	110 659 665	11,68%
1990 Rands	133 538 303	134 413 786	101 767 830	101 615 854	-23,91%
Avg. Growth P.A.		0,66%	-24,29%	-0,15%	-7,93%
X/M%	1,04%	1,66%	4,28%	5,66%	443,77%
Avg. Growth P.A.		59,45%	157,50%	32,43%	83,13%
TOTAL EXPORTS	29 152 315	46 412 353	54 852 827	66 969 110	129,72%
1990 Rands	39 288 834	52 207 371	54 852 827	61 495 969	56,52%
Avg. Growth P.A.		32,88%	5,07%	12,11%	16,69%
TOTAL IMPORTS	1 073 223 790	934 785 951	1 082 974 312	1 070 800 119	-0,23%
1990 Rands	1 446 393 248	1 051 502 757	1 082 974 312	983 287 529	-32,02%
Avg. Growth P.A.		-27,30%	2,99%	-9,20%	-11,17%
X/M%	2,72%	4,97%	5,07%	6,25%	130,24%
Avg. Growth P.A.		82,78%	2,01%	23,48%	36,09%

EXPORTS OF CONSUMER DURABLES

SOURCE: TRADE STATISTICS FOR CALENDAR YEARS 1989 AND 1990,
AND MONTHLY BULLETIN OF TRADE STATISTICS, JANUARY 1992
NOTE: FIGURES ARE INFLATED DUE TO INCLUSION OF INDUSTRIAL MACHINER OF A SIMILAR TYPE

	PPI	74,2	88,9	100,0	108,9
ITEM		**1988**	**1989**	**1990**	**1991**
REFRIGERATORS AND PARTS	CURRENT	13 173 122	18 133 745	18 929 399	22 042 101
	1990	17 753 534	20 397 913	18 929 399	20 240 680
	% CHANGE	--	14,9%	-7,2%	6,9%
DISHWASHERS AND PARTS	CURRENT	4 218 101	6 854 578	5 668 062	9 110 460
	1990	5 684 772	7 710 436	5 668 062	8 365 895
	% CHANGE	--	35,6%	-26,5%	47,6%
WASHING MACHINES AND PARTS	CURRENT	523 711	1 095 490	1 545 119	1 667 472
	1990	705 810	1 232 272	1 545 119	1 531 196
	% CHANGE	--	74,6%	25,4%	-0,9%
DRYERS AND PARTS	CURRENT	663 451	3 327 982	3 124 244	2 406 089
	1990	894 139	3 743 512	3 124 244	2 209 448
	% CHANGE	--	318,7%	-16,5%	-29,3%
TOTAL WG	CURRENT	18 578 385	29 411 795	29 266 824	35 226 122
	1990	25 038 255	33 084 134	29 266 824	32 347 219
	% CHANGE	--	32,1%	-11,5%	10,5%
STOVES, SMALL APPS AND PARTS	CURRENT	4 730 478	8 519 929	9 776 386	12 319 953
	1990	6 375 307	9 583 722	9 776 386	11 313 088
	% CHANGE	--	50,3%	2,0%	15,7%
HI-FI	CURRENT	1 379 562	1 636 233	4 120 745	5 693 994
	1990	1 859 248	1 840 532	4 120 745	5 228 645
	% CHANGE	--	-1,0%	123,9%	26,9%
VCRs	CURRENT	1 825 871	1 966 697	1 768 331	1 374 745
	1990	2 460 743	2 212 258	1 768 331	1 262 392
	% CHANGE	--	-10,1%	-20,1%	-28,6%
HI-FI AND VIDEO PARTS	CURRENT	161 283	246 185	457 990	1 017 105
	1990	217 363	276 924	457 990	933 981
	% CHANGE	--	27,4%	65,4%	103,9%
RADIOS OF ALL TYPES	CURRENT	415 123	1 162 638	3 706 753	2 897 108
	1990	559 465	1 307 804	3 706 753	2 660 338
	% CHANGE	--	133,8%	183,4%	-28,2%
TOTAL AUDIO AND VCR	CURRENT	3 781 839	5 011 753	10 053 819	10 982 952
	1990	5 096 818	5 637 517	10 053 819	10 085 355
	% CHANGE	--	10,6%	78,3%	0,3%
TELEVISIONS	CURRENT	1 029 510	1 484 178	1 403 353	2 172 294
	1990	1 387 480	1 669 492	1 403 353	1 994 760
	% CHANGE	--	20,3%	-15,9%	42,1%
TELEVISION PARTS	CURRENT	1 032 103	1 984 698	4 352 445	6 267 789
	1990	1 390 974	2 232 506	4 352 445	5 755 545
	% CHANGE	--	60,5%	95,0%	32,2%
TOTAL TV	CURRENT	2 061 613	3 468 876	5 755 798	8 440 083
	1990	2 778 454	3 901 998	5 755 798	7 750 306
	% CHANGE	--	40,4%	47,5%	34,7%
TOTAL EXPORTS	CURRENT	29 152 315	46 412 353	54 852 827	66 969 110
	1990	39 288 834	52 207 371	54 852 827	61 495 969
	% CHANGE	--	32,9%	5,1%	12,1%

Chapter Four: Household Electrical Durables, Electrification, and the Macroeconomy

A. Electrification and The Macroeconomy

1. Introduction

One of the most important arguments advanced by supporters of redistributive economics in a future South Africa is that two birds may be killed by one stone thereby: redistribution will be good not only for those disadvantaged by apartheid, but for the economy as well. Redistribution, it is claimed, will lead to a demand-led recovery based on the domestic manufacture of goods for the local market. This will not only stimulate growth, but will assist a structural transformation of the South African economy away from production and export of primary products, towards manufactures.

Mass housing and electrification programmes have been put forward as a major component of such a process (for e.g., Theron, 1991; Berrisford and Bluff, 1991; Roohani, 1987; Gervais, 1987; ANC, 1991). It has been expected that such programmes will stimulate a range of industries, from power and transmission equipment to building materials. One such industry is the HED industry, for the obvious reason that it is well-placed to supply the increased demand for HEDs which will accompany urbanisation, better housing, and electrification.

A prevailing assumption within ANC and COSATU circles has been that employment in the HED industry will grow as a result of electrification. What has been lacking are microeconomic foundations on which to base such projections. Indeed, there are few reliable projections of electrification's impact on the HED industry, and the economy more generally.

This chapter seeks to help fill this gap by combining information on the South African HED industry, assembled from a variety of sources, with estimations of electrification's impact on HED sales developed by the author. The basic method has been to construct a set of projections which combine market data, foreign exchange usage, production cost structures, and value added analysis with details of HED sales to the urban black market during 1989-1991. This provides an *estimation* of the potential impact of further electrification on several key macroeconomic magnitudes, including the following:

- The total and marginal impact of electrification of urban black households on market size, domestic production and value added (of final products and *first-round* intermediates), and import requirements of both finished goods and intermediate inputs. These projections are presented below for the first year of electrification, and for a five-year period. They are based on two hypothetical cases of electrification, one of 650 000 houses over five years, the other of 2 000 000. They are counterposed to comparable figures for fiscal year 1991-1992.

- An assessment of the net benefit to the South African economy of producing these goods locally under current conditions, compared to a series of counterfactuals in which they were imported at free or reduced rates of duty.
- An assessment of the Domestic Resource Cost[1] to the South African economy of local production of these goods over the electrification period.

a) A Cautionary Note

Information of the type presented below has been eagerly sought by participants in the debate on electrification and redistribution. In particular, those in favour of such programmes are eager to show their supposed macroeconomic benefits. Before proceeding, however, it is absolutely essential that these projections be regarded with caution, for the following reasons:

- They are based on data gathered from a variety of sources, some of which were documents prepared by the HED industry, some government statistics, and some private consultancy reports. I have found these sources to be conflicting, and have had to use my judgement as to which to regard as the most accurate.
- Some of the sources used were prepared by the HED industry in presentations to the government in favour of continued protection. I have attempted to verify independently their estimates of domestic value added and forex requirements, but have had to trust them in most cases.
- These figures are from 1989 and may have changed considerably since then.
- *The projections concern ex-factory sales and CIF import values only*, and thus *do not* include retail mark-ups, value added in retail, etc. In other words, these are not retail prices, but "wholesale". This seemed like a more sensible way to compare imports and local manufactures.
- *The projections are not total projections for the entire economy.* They are projections of the impact of electrification of *urban black households only*. Where figures for the marginal and total market resulting from electrification are presented, they are based on FY 1991's actual market *plus* the additional sales imputed to electrification *only*. This applies *pari passu* to all figures subsequently derived, such as value added, intermediate input requirements, and imports. Thus excluded are (i) the effects of changes in personal disposable income and private consumption expenditure, (ii) relative price changes to the products in question, (iii) sales growth to other 'population groups', and (iv) electrification of rural areas.
- The projections assume unchanged microeconomic variables over the period, such as rates of value added, import content of domestic products, import shares of the domestic market, and so on. This is of course unrealistic. Yet assuming that they remain the same has the advantage of indicating potential areas for policy to address: for example, increasing domestic value added, local content, equalising tariffs, and so on.
- *The projections cover only selected products for which information was available.* Thus excluded are all small appliances, including microwaves, and a panoply of consumer electronics, including the all-important audio portion. The items covered,

however, are those either most heavily demanded by urban black households or problematic from a manufacturing standpoint. Audio products, for example, are not a viable area for South African manufacture (see Chapter Five) and including them would have been stating the obvious, although the import projections would have been very useful. Televisions, on the other hand, may not be a viable domestic product, but there is considerable debate about this and the projections may help to make a decision. Small appliances will almost certainly be a positive factor in all respects as imports are small. Including them would have made the aggregate figures better, but would not have been as illuminating from the perspective of industrial policy (data on them was also not available).

- The early 1994 exchange rate of US$1 = R$3,40 has been used throughout.

B. Electrification, HED Take-up, and Economic Cost

1. Rates of Electrification and HED Uptake

Table One (following this page) lists the number of electrified urban black households, as well as those owning selected HEDs, in 1989 and 1991. It shows the total increase in electrified urban black households and households owning the product, as well as the average yearly increase. It also shows the increase in HED ownership as a percentage of the increase in the number of electrified urban black households. Finally, it shows the average yearly increase as a percentage of the total South African market for that product in FY 1991.

a) Analysis

- All products were taken up by electrified urban black households more rapidly than the rate of electrification, with the exception of EFS stoves, chest freezers, and washing machines. In the case of tumble dryers and VCRs the rate of increase was dramatic, although from a very low base. This suggests that factors other than electrification, such as urbanisation, income shifts, and increasing home ownership are also significant influences on the rate of appliance uptake.
- In the case of hotplates, refrigerators, televisions, and VCRs, average annual uptake was a very significant proportion of the FY 1991 market for those products. This is probably to be explained by their practicality or popularity in urban areas and the unavailability of substitutes.
- The slow rate of uptake of EFS stoves and washing machines may be explained by the factors discussed in Chapter One. In particular, the high relative cost of EFS stoves and the ready availability of alternative cooking methods has slowed penetration very considerably. The high cost of washing machines and the easy substitutability of human labour has probably slowed uptake.

Table One: Actual Rates of Electrification and Appliance Takeup, 1989-1991

	1	2	3	4	5	6	7	8	9
	1989	1991	Total Increase	Total % Change	Yearly Increase	Avg. Yrly. % Incr.	% of Electri-fication Rate	1991/2 Market	5 as % of 8
Electrified Hsds.	884 850	1 064 880	180 030	20,3%	90 015	9,7%	100,0%	180 030	50,0%
EFS Stoves	503 150	542 880	39 730	7,9%	19 865	3,9%	39,9%	108 200	18,4%
Built-in Oven	34 700	41 760	7 060	20,3%	3 530	9,7%	100,0%	41 900	8,4%
Cooking Hob	17 350	20 880	3 530	20,3%	1 765	9,7%	100,0%	43 000	4,1%
Hotplates	312 300	417 600	105 300	33,7%	52 650	15,6%	161,2%	288 000	18,3%
Refrigerators	799 680	1 066 560	266 880	33,4%	133 440	15,5%	159,6%	218 000	61,2%
Chest Freezers	133 280	133 320	40	0,0%	20	0,02%	0,15%	87 900	0,02%
Automatic Washers	114 240	133 320	19 080	16,7%	9 540	8,0%	82,7%	81 700	11,7%
Twin-tub Washers	57 120	44 440	(12 680)	-22,2%	(6 340)	-11,80%	-121,57%	57 200	-11,08%
Tumble Driers	5 712	22 220	16 508	289,0%	8 254	97,2%	1002,2%	37 400	22,1%
Televisions	866 000	1 280 160	414 160	47,8%	207 080	20,2%	208,2%	475 000	43,6%
VCRs	57 120	177 760	120 640	211,2%	60 320	76,4%	787,5%	107 402	56,2%

Notes:

1. Based on data drawn from confidential industry report and DAMSA, 1991.
2 Columns 1 and 2 represent the number of urban black households owning that appliance in that year.
3. Column 6, 'Avg. Yrly. % Incr.', is the average yearly percentage increase in take-up of that product by urban black households between 1989-1991.
4. Column 7, '% of Electrification Rate', is the average percentage annual increase in take-up of that product 1989-1991 divided by the average annual increase in electrified households over the same period, expressed as a percentage. It therefore expresses the slope of the linear relationship between electrification and take-up of that appliance (see text).
5. Column 9, '5 as % of 8', is the annual percentage increase in 1991's South African market for that product (Column 8) due to take-up by urban black households (Column 5).

2. Projected Electrification and HED Uptake

Table Two shows two scenarios of electrification and HED uptake. One scenario assumes 130 000 newly electrified households p.a. over five years; the other assumes 400 000 p.a. Column One shows the first year's projected increase in electrified urban black households over 1991's total. It then assumes that that year's rate of HED uptake increases by the same factor. Column Two lists the percentage by which projected uptake of each product exceeds FY 1991's actual increase. Column Three shows the percentage by which the projected *rate* of uptake of each product exceeds (or lags behind) the *rate* of increase in electrified urban black households. Column Five shows the projected *unit* increase as a percentage of the FY 1991 market volume for each product (Column Four), whilst Column Six gives a projected unit market volume for the first year of electrification.

Table Three shows the impact of the data presented in Table Two on marginal and total market *values*.

Columns 1-3 of Table 3a show FY 1991 unit sales, the average percentage of those sales provided by imports, and the remainder produced locally. Column 4r gives an average ex-factory price for the product, whilst Column 5 gives the resulting total ex-factory sales. Column 6 lists the total unit imports for FY 1991, whilst Columns 7 and 8 list average CIF import prices and the total CIF import value, respectively. Column 9 gives the FY 1991 "total economic cost" of the market for those products — in the sense of resources forgone through domestic production or imports, excluding retail sales margins. Note that Column 9 does *not* represent retail market values.

Tables 3b and 3c list projected *additional* unit sales, domestic unit production, and unit imports based on the electrification scenarios developed in Table 2. Using the ex-factory prices and CIF import values from Table 3a, projections for additional total ex-factory sales value, CIF import value, and total "additional economic cost" are listed in Columns 4, 7 and 8, respectively. Column 9 gives the projected "total economic cost" for each scenario, which is simply FY 1991's market values from Column 9 of Table 3a plus the additional values given in Column 8 of Tables 3a and b.

a) Analysis

(1) Table Two

- As in Table One, in most cases the rate of HED uptake (Column 3) exceeds that of electrification, with the exception of EFS stoves, chest freezers, and washing machines. In all cases the projected increase in HED uptake is a very significant percentage of the FY 1991 market total (Column 5). A more rapid rate of electrification doubles or more than doubles the annual South African market for refrigerators, televisions, and VCRs. Potential market growth is also significant for EFS stoves and hotplates.
- Projected market growth over 1991 is not significantly over 100% except in the cases of refrigerators, tumble dryers and televisions under the Best Case scenario. In the cases of cooking and other laundry products it is significant, but not unduly challenging — certainly no more so than the large fluctuations in sales experienced after 1983 and 1990. This implies that the South African HED industry should be able to handle the

Table Two: Electrification and Appliance Takeup: Scenarios of Impact on Market Unit Volumes, First Year

Table 2a: Worst Case: 650 000 Newly Electrified Homes over Five Years (130 000 Newly Electrified Homes Per Year)

	1	2	3	4	5	6
	Projected Unit Increase	% Change from '91	% of Electri-fication Rate	1991/2 Market	1 as % of 4	Projected New Unit Sales
Electrified Hsds.	130 000	12,2%	100,0%	90 015	144,4%	130 000
EFS Stoves	26 457	4,9%	39,9%	108 200	24,5%	134 657
Built-in Oven	5 098	12,2%	100,0%	41 900	12,2%	46 998
Cooking Hob	2 549	12,2%	100,0%	43 000	5,9%	45 549
Hotplates	82 161	19,7%	161,2%	288 000	28,5%	370 161
Refrigerators	207 842	19,5%	159,6%	218 000	95,3%	425 842
Chest Freezers	25	0,0%	0,2%	87 900	0,0%	87 925
Automatic Washers	13 468	10,1%	82,7%	81 700	16,5%	95 168
Twin-tub Washers	(6 595)	-14,8%	-121,6%	57 200	-11,5%	50 605
Tumble Driers	27 185	122,3%	1002,2%	37 400	72,7%	64 585
Televisions	325 425	25,4%	208,2%	475 000	68,5%	800 425
VCRs	170 905	96,1%	787,5%	107 402	159,1%	278 307

Table 2b: Best Case: 2 000 000 Newly Electrified Homes over Five Years (400 000 Newly Electrified Homes Per Year)

	1	2	3	4	5	
	Projected Unit Increase	% Change from '91	% of Electri-fication Rate	1991/2 Market	1 as % of 4	Projected New Unit Sales
Electrified Hsds.	400 000	37,56%	100,0%	90 015	444,4%	400 000
EFS Stoves	81 405	15,00%	39,9%	108 200	75,2%	189 605
Built-in Oven	15 686	37,56%	100,0%	41 900	37,4%	57 586
Cooking Hob	7 843	37,56%	100,0%	43 000	18,2%	50 843
Hotplates	252 803	60,54%	161,2%	288 000	87,8%	540 803
Refrigerators	639 515	59,96%	159,6%	218 000	293,4%	857 515
Chest Freezers	77	0,06%	0,2%	87 900	0,1%	87 977
Automatic Washers	41 440	31,08%	82,7%	81 700	50,7%	123 140
Twin-tub Washers	(20 294)	-45,67%	-121,6%	57 200	-35,5%	36 906
Tumble Driers	83 645	376,44%	1002,2%	37 400	223,7%	121 045
Televisions	1 001 307	78,22%	208,2%	475 000	210,8%	1 476 307
VCRs	525 861	295,83%	787,5%	107 402	489,6%	633 263

Notes:

1. Column 1 has been derived by first calculating the percentage increase in electrified households relative to 1991 implied by a rate of 130 000 or 400 000 new hook-ups per year, and multiplying this by the factor relating electrification and take-up rates for each appliance derived in Column 7 of Table 2. The projected annual increase in take-up of each appliance is then calculated by multiplying this result by 1991's stock of each appliance in urban black households. For example, the increase in EFS stoves is (12.2% x 39.9%) x 542 880. This is consistent with the linear relationshiop described in Note 4 of Table 1 and in the text, and the restrictive assumptions underlying it.
3. Column 5, '1as a % of 4', is analogous to Column 9 in Table 1.
4. Column 6, 'New Market Total', is the projected size of the South African market for that appliance, assuming sales other than to urban black households are held constant -- restrictive, but necessary.

Table Three: Projected Additional Economic Cost of Electrification and Resulting Total Economic Cost (First Year)

Table 3a: 1991/2 Domestic Production, CIF Import, and Total Units and Values

	1	2	3	4	5	6	7	8	9
Product	1991/2 Unit Sales	Avg. 1991/2 Unit Import %	1991/2 Unit Production	Avg. Ex-Factory Price	1991/2 Ex-factory Domestic Sales	1991/2 Unit Imports	Avg. CIF Import Price	1991/2 CIF Imports	1991/2 Total Economic Cost
EFS Stoves	108 200	8,0%	99 544	R1 444,20	R143 761 206	8 656	R760,10	R6 579 460	R150 340 666
Built-in Oven	41 900	8,0%	38 548	R1 973,53	R76 075 645	3 352	R1 101,68	R3 692 837	R79 768 482
Cooking Hob	43 000	8,0%	39 560	R566,94	R22 428 295	3 440	R309,67	R1 065 272	R23 493 566
Hotplates	288 000	10,0%	259 200	R95,00	R24 622 963	28 800	R84,76	R2 441 146	R27 064 109
Refrigerators	218 000	12,7%	190 314	R1 394,99	R265 485 728	27 686	R786,38	R21 771 695	R287 257 422
Chest Freezers	87 900	3,3%	84 999	R893,49	R75 945 870	2 901	R581,81	R1 687 650	R77 633 520
Automatic Wash	81 700	23,5%	62 501	R1 512,21	R94 514 058	19 200	R872,71	R16 755 634	R111 269 692
Tumble Driers	37 400	6,1%	35 119	R739,37	R25 965 476	2 281	R426,03	R971 953	R26 937 429
Televisions	475 000	10,0%	427 500	R985,35	R421 235 928	47 500	R765,00	R36 337 500	R457 573 428
Totals	--	--	--	--	R1 150 035 168	--	--	R91 303 146	R1 241 338 315

Table 3b: Worst Case: 650 000 Newly Electrified Homes over Five Years (130 000 Newly Electrified Homes Per Year)

	1	2	3	4	5	6	7	8	9
Product	Projected Unit Increase	Projected Add. Unit Production	Avg. Ex-Factory Price	Projected Add. Ex-Factory Sales	Projected Add. Unit Imports	Avg. CIF Import Price	Projected Add. CIF Imports	Projected Add. Economic Cost	Projected Total Economic Cost
EFS Stoves	26 457	24 340	R1 444,20	R35 151 992	2 117	R760,10	R1 608 787	R36 760 778	R187 101 445
Built-in Oven	5 098	4 690	R1 973,53	R9 256 244	408	R1 101,68	R449 313	R9 705 557	R89 474 039
Cooking Hob	2 549	2 345	R566,94	R1 329 539	204	R309,67	R63 149	R1 392 687	R24 886 254
Hotplates	82 161	73 945	R95,00	R7 024 466	8 216	R84,76	R696 413	R7 720 879	R34 784 988
Refrigerators	207 842	181 446	R1 394,99	R253 115 338	26 396	R786,38	R20 757 236	R273 872 574	R561 129 996
Chest Freezers	25	24	R893,49	R21 748	1	R581,81	R483	R22 231	R77 655 751
Automatic Wash	13 468	10 303	R1 512,21	R15 580 358	3 165	R872,71	R2 762 116	R18 342 473	R129 612 165
Tumble Driers	27 185	25 526	R739,37	R18 873 377	1 658	R426,03	R706 478	R19 579 855	R46 517 284
Televisions	325 425	292 882	R985,35	R288 590 612	32 542	R765,00	R24 894 983	R313 485 595	R771 059 023
Totals	--	--	--	R628 943 673	--	--	R51 938 957	R680 882 630	R1 922 220 945

Table 3c: Best Case: 2 00 000 Newly Electrified Homes over Five Years (400 000 Newly Electrified Homes Per Year)

	1	2	3	4	5	6	7	8	9
Product	Projected Unit Increase	Projected Add. Unit Production	Avg. Ex-Factory Price	Projected Add. Ex-Factory Sales	Projected Add. Unit Imports	Avg. CIF Import Price	Projected Add. CIF Imports	Projected Add. Economic Cost	Projected Total Economic Cost
EFS Stoves	81 405	74 893	R1 444,20	R108 159 974	6 512	R760,10	R4 950 113	R113 110 087	R263 450 753
Built-in Oven	15 686	14 431	R1 973,53	R28 480 751	1 255	R1 101,68	R1 382 502	R29 863 253	R109 631 735
Cooking Hob	7 843	7 216	R566,94	R4 090 888	627	R309,67	R194 304	R4 285 192	R27 778 758
Hotplates	252 803	227 523	R95,00	R21 613 742	25 280	R84,76	R2 142 808	R23 756 551	R50 820 659
Refrigerators	639 515	558 296	R1 394,99	R778 816 425	81 218	R786,38	R63 868 417	R842 684 842	R1 129 942 264
Chest Freezers	77	75	R893,49	R66 916	3	R581,81	R1 487	R68 403	R77 701 923
Automatic Wash	41 440	31 702	R1 512,21	R47 939 562	9 738	R872,71	R8 498 818	R56 438 379	R167 708 072
Tumble Driers	83 645	78 543	R739,37	R58 071 929	5 102	R426,03	R2 173 778	R60 245 707	R87 183 136
Televisions	1 001 307	901 176	R985,35	R887 971 114	100 131	R765,00	R76 599 948	R964 571 063	R1 422 144 491
Totals	--	--	--	R1 935 211 301	--	--	R159 812 177	R2 095 023 477	R3 336 361 792

Notes: ,

1. All prices are based on an exchange rate of $US1 = R3,40.

Table 3a:

1. Values for '1991/2 Unit Sales' and 'Avg. 1991/2 Unit Production' are taken from Table 2.
2. Values for '1991/2 Unit Production' (Column 3) and '1991/2 Unit Imports' (Column 6) are derived by multiplying column 1 by the 'Avg. 1991/2 Import %' (1 - this value in the case of Column 3).
3. Values for 'Avg. Ex-factory Price' (Column 5) and 'Avg. CIF Import Price' (Column 7) were calculated from DAMSA, 1991.
4. Values for '1991/2 Ex-factory Domestic Sales' (Column 5) and '1991/2 CIF Imports' (Column 8) are derived by multiplying the relevant unit figure by the ex-factory or CIF price.

Tables 3b and 3c:

1. Values for Column 1 are taken from Table 2.
2. Values for Columns 2 and 5 are derived as for Columns 3 and 6 in Table 3a, substituting 'Projected Unit Increase' for '1991/2 Unit Sales'.
3. Values for Columns 3 and 6 are the same as for Columns 4 and 7 of Table 3a.
4. Values for Columns 4 and 7 are derived as for Columns 5 and 8 in Table 3a.
5. Column 8, 'Projected Additional Economic Cost', is derived by adding Columns 4 and 7, and is thus analogous to Column 9 of Table 3a.
6. Column 9, 'Projected Total Economic Cost', is derived by adding the adjacent value in Column 8 to the relevant value in Column 9 of Table 3a.

The resulting value is thus 1991/2's value for economic cost plus the additional cost arising from electrification.

projected increase in sales consequent on electrification quite easily, given current underutilisation of capacity.

(2) Table Three

- In value terms particularly strong growth can be expected in refrigerators and televisions. The annual value of the South African television market could easily top R950 000. It should be borne in mind, however, that this figure could be significantly lower if duties were relaxed and cheaper imports allowed to enter the market.
- In terms of local manufacturing *per se*, the main issue will probably not be the need to find sources of new investment in new capacity, but firms' ability to avoid bottlenecks in materials, components, labour and organisation. However, the more basic issue will probably be local manufacturers' ability to maintain market share versus imports. As we have seen, there appears to be a distinct tendency for imports to rise very rapidly in an upturn, as in 1983-84, and for local production to lag considerably. Means must be devised to avoid a re-occurrence by encouraging local manufacturers to take a longer-term view of the electrification and housing process. Another matter to consider is the industry's ability to increase local supply whilst maintaining quality and competitive prices.

3. Projected Local vs. Import Content of Sales, FY 1991 and For the Electrification Scenarios

Table 4 gives a base-line for FY 1991 against which to compare the impact of electrification, and is the basic form of most of the Tables to follow. All estimations of value added, component costs, CIF import values, import and local content, and derived values are based strictly on DAMSA (1991) and interview sources. Per-product figures for each of these magnitudes have simply been multiplied as appropriate by total unit sales, imports, and/or domestic production for FY 1991.

Columns 0-5 of Table 4 are all identical to the corresponding columns in Table 3, and list total unit sales of each product for FY 1991, the corresponding "total economic cost" figure for each product for that year, average percentage unit imports in the total market, and the value of ex-factory sales and CIF imports.

Column 5 of Table 4 introduces an estimation of domestic value added in manufacturing the product in question during FY 1991 — in other words, the proportion of the ex-factory selling price which represents value added by the final manufacturer. Column 6 estimates the total cost of inputs required for that production process. Columns 7 and 8 estimate the values of imported and domestically-supplied inputs. Column 9 estimates value added arising from local production of inputs for each product, whilst Column 10 does the same for the import content of locally-produced inputs ("import leakage").

Column 11 adds Columns 7 and 10 to give an estimate of the total import content of domestic production of each appliance for FY 1991. Column 12 does the same for domestic value added (Column 5 plus Column 9).

Table Four: Selected HED Domestic Value Added and CIF Import Values for the SA Economy , 1991/1992

	0	1	2	3	4	5	6	7	8	9
Product	Total Unit Sales	Total Economic Cost	Avg. Percentage Imports	Imports of Final Products (C.I.F. Value)	Ex-factory Sales of Domestic Final Products	Domestic Value Added: Final Product	Inputs Required for Domestic Production	Imported Inputs Required	Domestic Inputs Required	Domestic Value Added: Domestic Inputs
EFS Stoves	108 200	R150 340 666	8,0%	R6 579 460	R143 761 206	R14 572 286	R97 335 397	R16 440 528	R80 894 870	R24 268 461
Built-in Oven	41 900	R79 768 482	8,0%	R3 692 837	R76 075 645	R7 017 648	R55 996 490	R19 388 966	R36 607 525	R10 982 257
Cooking Hob	43 000	R23 493 566	8,0%	R1 065 272	R22 428 295	R1 856 155	R15 443 211	R4 194 911	R11 248 301	R3 374 490
Hotplates	288 000	R27 064 109	10,0%	R2 441 146	R24 622 963	R7 772 890	R12 672 806	R7 490 880	R5 181 926	R1 551 053
Refrigerators	218 000	R287 257 422	12,7%	R21 771 695	R265 485 728	R26 074 236	R181 805 289	R51 076 928	R130 728 361	R39 218 508
Chest Freezers	87 900	R77 633 520	3,3%	R1 687 650	R75 945 870	R9 731 128	R52 962 860	R18 824 149	R34 138 711	R10 241 613
Automatic Washers	81 700	R111 269 692	23,5%	R16 755 634	R94 514 058	R7 741 862	R70 732 466	R27 565 721	R43 166 745	R12 950 024
Tumble Driers	37 400	R26 937 429	6,1%	R971 953	R25 965 476	R2 175 049	R18 389 054	R3 592 127	R14 796 927	R4 439 078
Televisions	475 000	R457 573 428	10,0%	R36 337 500	R421 235 928	R29 070 000	R362 095 920	R298 200 060	R63 895 860	R19 168 758
TOTALS	--	R1 241 338 315	--	R91 303 146	R1 150 035 168	R106 011 254	R867 433 494	R446 774 269	R420 659 226	R126 194 242,59
As a % of Total Cost		100,00%	--	7,36%	92,64%	8,54%	69,88%	35,99%	33,89%	10,17%

	10	11 (7 +10)	12 (5 + 9)	13 (3 + 11)	14	15 (12 - 13 + 14)	16 (12 - 11)	17 (10/9)	18 (7/5)	19 (11/12)
Product	Import Content of Domestic Inputs for Domestic Production	Total Import Content of Domestic Production	Total Domestic Value Added	Total Imports (Final and Parts)	Final Product Imports Saved	Net Benefit (Cost) Overall	Domestic VA Less Production Import Content	Forex Used/ Domestic VA: Components	Forex Used/ Domestic VA: Final Product	Forex Used/ Domestic VA: Overall
EFS Stoves	R7 585 062	R24 025 589	R38 840 747	R30 605 050	R75 663 793	R83 899 490	R14 815 157	R0,31	R1,13	R0,62
Built-in Oven	R2 079 250	R21 468 215	R17 999 905	R25 161 052	R42 467 622	R35 306 476	(R3 468 310)	R0,19	R2,76	R1,19
Cooking Hob	R1 754 438	R5 949 349	R5 230 645	R7 014 620	R12 250 624	R10 466 649	(R718 703)	R0,52	R2,26	R1,14
Hotplates	R2 626 214	R10 117 094	R9 323 942	R12 558 240	R21 970 310	R18 736 013	(R793 152)	R1,69	R0,96	R1,09
Refrigerators	R18 387 694	R69 464 622	R65 292 744	R91 236 317	R149 658 971	R123 715 399	(R4 171 878)	R0,47	R1,96	R1,06
Chest Freezers	R3 010 269	R21 834 418	R19 972 741	R23 522 068	R49 453 273	R45 903 946	(R1 861 676)	R0,29	R1,93	R1,09
Automatic Washers	R3 089 707	R30 655 427	R20 691 886	R47 411 061	R54 544 936	R27 825 761	(R9 963 542)	R0,24	R3,56	R1,48
Tumble Driers	R962 295	R4 554 422	R6 614 128	R5 526 375	R14 961 704	R16 049 456	R2 059 706	R0,22	R1,65	R0,69
Televisions	R10 901 250	R309 101 310	R48 238 758	R345 438 810	R327 037 500	R29 837 448	(R260 862 552)	R0,57	R10,26	R6,41
TOTALS	R50 396 177	R497 170 446	R232 205 497	R588 473 593	R748 008 733	R391 740 637	(R264 964 950)	R0,40	R4,21	R2,14
As a % of Total Cost	4,06%	40,05%	18,71%	47,41%	60,26%	31,56%	-21,35%	--	--	--

Notes:

1. Values for additional domestic production and imports (units and value) are taken from previous Tables.
2. Value added, import content, and materials requirements (domestic and imported) are based on DAMSA, 1991, and C & E data, as presented in the Appendix to this Chapter.
3. Import percentages are averages for 1992 calculated from C & E data provided by DAMSA.
4. Column 14 expresses the average CIF value times the number of additional units produced domestically - i.e., how much it would have cost to import those units instead.
5. Column 15 expresses the total value added from domestic production less the cost of imported inputs for that production, plus the value of imports saved thereby.

6 Column 16 expresses the difference between value added in domestic production and the cost of imported inputs used therein.

4. Columns 17, 18 and 19 express, in Rands, the amount of foreign exchange used per Rand of value added, in the production of components (first round), final products, and overall.

Column 13 adds total CIF imports and total imported inputs required for domestic production of final products to give a total import bill for supplying the market for each appliance in FY 1991. Column 14, on the other hand, simply takes the total domestic production of each appliance in that year and multiplies it by the average CIF import price for that product, to give an estimation of the gross foreign exchange savings achieved by local production.

Column 15 goes out on a bit of a limb and attempts to calculate the "net" forex benefit or cost to the economy of supplying the market in FY 1991, by subtracting total imports (final and components) from total value added and adding this to the value of imports saved. Column 16, on the other hand, calculates the difference between total value added for each product and the import content of that product, in both the final assembly stage and in component manufacture.

Columns 17, 18 and 19 calculate the ratios between forex used in the production of local inputs, final products, and in both added together. In other words, these are measures of the foreign exchange used to add one Rand of domestic value added in each stage of appliance manufacture. For example, in producing televisions, South African manufacturers use an average R10,26 worth of foreign exchange to add one Rand of value. Aggregate figures for all the products listed are provided at the bottom of these columns, in order that the ratio for each product may be compared with it.

Finally, at the bottom of each column the total figure for all the products listed is compared to the "total economic cost" figure in Column 1 in order to give a sense of the proportion of each magnitude in relation to the total resources expended on that product economy-wide in FY 1991. For example, the value of imported inputs required to produce these appliances domestically in FY 1991 was approximately 34% of the total value of ex-factory sales and CIF imports.

a) Analysis

What is important about the FY 1991 model is not the absolute value of the figures, but their relations to one another.

- For example, according to this method total CIF imports of final products represented only 7,4% of the total economic cost of the market for these appliances in FY 1991. But imported inputs required for domestic production for that market represented almost 36% of the total cost. Overall, imported products and inputs cost over 40% of the value of the wholesale market for these products.
- Similarly, as a percentage of the total economic cost of the products listed, more value was added domestically in the production of inputs (10,2%) than in production of final products (8,54%), whilst domestic value added accounted for only 18,7%.
- Not surprisingly, when the value of imports saved is excluded from the equation, many products turn out to be forex losers. Although following DAMSA's (1991) methodology, it would appear that forex to a value of 60,2% of the total economic cost of the market for these products was "saved" by import substitution (Column 14), in fact only manufacturers of EF stoves and tumble dryers added more value than they spent in forex in FY 1991.

- The forex/value added relationship in the case of televisions is extraordinary, and distorts the averages and totals significantly.

4. Projected Additional Local Value Added and Import Values: First year of Electrification

Table 5 lists the projected *additional* local value added, intermediate input purchases, and aggregate import requirements arising from the two electrification scenarios developed in Tables 2-4 in just one year of electrification. In all respects the logic of this Table follows that of Table 4: it simply compares the *additional* value of each variable which is projected to result from electrification (and other uncontrolled factors!) to the figures for FY 1991. It does this by multiplying the additional unit sales, ex-factory production, and imports derived in Tables 3a and b by the values for value added, inputs, CIF import prices, etc. found in the Appendix. The logic behind each column and the methods used to derive it is thus *exactly* the same as for Table 4. It is just "marginal" instead of "absolute".

For example, additional imports of EF stoves are projected to total R1 608 787 in the first year of an electrification programme services 130 000 new houses each year (Column 3) — not the total imports of such appliances by any means, but the *extra* cost of importing such stoves to satisfy the market growth coming from electrification and other relevant factors. The same logic holds for the other columns.

Table 6, on the other hand, is simply the additional values derived in Table 5 added to the FY 1991 values derived in Table 4 to give a market projection based on the existing FY 19921 market *plus* the additional effects of electrification — and nothing else. For example, *all other things being held equal — this cannot be stressed enough!* — the total cost of CIF imports of EFS stoves during the first year of an electrification programme of 400 000 homes per year would be R11 529 573 (Table 6b, Column 3).

a) Two things to bear in mind

- In Tables 4, 5, 6 and subsequent Tables, Columns 5 and 9 have been derived by multiplying projected unit sales of locally-produced products to the urban black market by product-specific rates of value added *in manufacture and wholesale operations only.* As noted above, the figure thus excludes value added arising from retail operations. On the other hand, these value added figures are not corrected to reflect the Effective Rate of Protection enjoyed by each product (see below) and are thus 'apparent' rather than 'actual' value added.
- *Because these estimations of domestic value added are macroeconomic and not firm-based figures, I have not regarded overheads per unit as part of value added for the final product,* as does DAMSA (1991). Instead, overhead costs are distributed to the imputed values of intermediate local and imported inputs according to a factor reflecting the proportion of foreign-denominated assets in the overall value of fixed assets, based on interview sources. The reason for this is simple. Although from the perspective of a firm, it is "adding value" when it imputes overhead charges to a product — value which it bought in the form of capital goods, etc. — from the perspective of the economy value is only added through production, not through the

Table Five: Projected Additional Domestic Value Added and CIF Import Values Arising From Electrification of Black Urban Areas (First Year)

Table 5a: Worst Case: 650 000 Newly Electrified Homes over Five Years (130 000 Newly Electrified Homes Per Year)

	0	1	2	3	4	5	6	7	8	9
Product	Projected Additional Unit Sales	Projected Additional Economic Cost	Avg. Percentage Imports	Additional Imports of Final Products (C.I.F. Value)	Additional Ex-factory Sales of Domestic Final Products	Additional Domestic Value Added: Final Product	Additional Inputs Required for Domestic Production	Additional Imported Inputs Required	Additional Domestic Inputs Required	Additional Domestic Value Added: Domestic Inputs
EFS Stoves	26 457	R36 760 778	8,0%	R1 608 787	R35 151 992	R3 563 165	R23 800 114	R4 019 981	R19 780 133	R5 934 040
Built-in Oven	5 098	R9 705 557	8,0%	R449 313	R9 256 244	R853 848	R6 813 181	R2 359 086	R4 454 095	R1 336 229
Cooking Hob	2 549	R1 392 687	8,0%	R63 149	R1 329 539	R1 10 032	R915 466	R248 672	R666 794	R200 038
Hotplates	82 161	R7 720 879	10,0%	R696 413	R7 024 466	R2 217 459	R3 615 312	R2 137 007	R1 478 306	R442 486
Refrigerators	207 842	R273 872 574	12,7%	R20 757 236	R253 115 338	R24 859 299	R173 334 015	R48 696 983	R124 637 033	R37 391 110
Chest Freezers	25	R22 231	3,3%	R483	R21 748	R2 787	R15 166	R5 390	R9 776	R2 933
Automatic Washers	13 468	R18 342 473	23,5%	R2 762 116	R15 580 358	R1 276 223	R11 660 034	R4 544 126	R7 115 908	R2 134 772
Tumble Driers	27 185	R19 579 855	6,1%	R706 478	R18 873 377	R1 580 966	R13 366 346	R2 610 989	R10 755 358	R3 226 607
Televisions	325 425	R313 485 595	10,0%	R24 894 983	R288 590 612	R19 915 987	R248 073 529	R204 298 190	R43 775 339	R13 132 602
TOTALS	--	R680 882 630	--	R51 938 957	R628 943 673	R54 379 764	R481 593 165	R268 920 424	R212 672 741	R63 800 817
As a % of Additional Cost		--	--	7,6%	92,4%	8,0%	70,7%	39,5%	31,2%	9,4%
As a % of Total Cost		--	--	2,7%	32,7%	2,8%	25,1%	14,0%	11,1%	3,3%

	10	11 (7 +10)	12 (5 + 9)	13 (3 + 11)	14	15 (12 - 13 + 14)	16 (12 - 11)	17 (10/9)	18 (7/5)	19 (11/12)
	Import Content of Additional Domestic Inputs for Domestic Production	Total Additional Import Content of Domestic Production	Total Additional Domestic Value Added	Total Additional Imports (Final and Parts)	Additional Final Product Imports Saved	Net Additional Benefit (Cost) Overall	Domestic VA Less Production Import Content	Forex Used/ Domestic VA: Components	Forex Used/ Domestic VA: Final Product	Forex Used/ Domestic VA: Overall
EFS Stoves	R1 854 673	R5 874 654	R9 497 205	R7 483 441	R18 501 048	R20 514 812	R3 622 551	R0,31	R1,13	R0,62
Built-in Oven	R252 986	R2 612 072	R2 190 077	R3 061 385	R5 167 103	R4 295 795	(R421 995)	R0,19	R2,76	R1,19
Cooking Hob	R104 002	R352 675	R310 070	R415 823	R726 211	R620 458	(R42 604)	R0,52	R2,26	R1,14
Hotplates	R749 209	R2 886 216	R2 659 945	R3 582 629	R6 267 715	R5 345 031	(R226 271)	R1,69	R0,96	R1,09
Refrigerators	R17 530 914	R66 227 897	R62 250 409	R86 985 132	R142 685 565	R117 950 841	(R3 977 488)	R0,47	R1,96	R1,06
Chest Freezers	R862	R6 252	R5 719	R6 736	R14 161	R13 145	(R533)	R0,29	R1,93	R1,09
Automatic Washers	R509 329	R5 053 455	R3 410 995	R7 815 571	R8 991 568	R4 586 993	(R1 642 460)	R0,24	R3,56	R1,48
Tumble Driers	R699 458	R3 310 446	R4 807 573	R4 016 924	R10 875 128	R11 665 776	R1 497 127	R0,22	R1,65	R0,69
Televisions	R7 468 495	R211 766 685	R33 048 588	R236 661 669	R224 054 849	R20 441 769	(R178 718 097)	R0,57	R10,26	R6,41
TOTALS	R29 169 927	R298 090 352	R118 180 581	R350 029 309	R417 283 348	R185 434 620	(R179 909 771)	R0,46	R4,95	R2,52
As a % of Additional Cost	4,3%	43,8%	17,4%	51,4%	61,3%	27,2%	-26,4%	--	--	--
As a % of Total Cost	1,5%	15,5%	6,1%	18,2%	21,7%	9,6%	-9,4%	--	--	--

Table Five: Projected Additional Domestic Value Added and CIF Import Values Arising From Electrification of Black Urban Areas (First Year)

Table 5b: Best Case: 2 00 000 Newly Electrified Homes over Five Years (400 000 Newly Electrified Homes Per Year)

	0	1	2	3	4	5	6	7	8	9
Product	Projected Additional Unit Sales	Projected Additional Economic Cost	Avg. Percentage Imports	Additional Imports of Final Products (C.I.F. Value)	Additional Ex-factory Sales of Domestic Final Products	Additional Domestic Value Added: Final Product	Additional Inputs Required for Domestic Production	Additional Imported Inputs Required	Additional Domestic Inputs Required	Additional Domestic Value Added: Domestic Inputs
EFS Stoves	81 405	R113 110 087	8,0%	R4 950 113	R108 159 974	R10 963 584	R73 231 120	R12 369 172	R60 861 948	R18 258 584
Built-in Oven	15 686	R29 863 253	8,0%	R1 382 502	R28 480 751	R2 627 226	R20 963 635	R7 258 726	R13 704 909	R4 111 473
Cooking Hob	7 843	R4 285 192	8,0%	R194 304	R4 090 888	R338 560	R2 816 819	R765 146	R2 051 674	R615 502
Hotplates	252 803	R23 756 551	10,0%	R2 142 808	R21 613 742	R6 822 949	R11 124 038	R6 575 405	R4 548 633	R1 361 496
Refrigerators	639 515	R842 684 842	12,7%	R63 868 417	R778 816 425	R76 490 150	R533 335 432	R149 836 870	R383 498 562	R115 049 569
Chest Freezers	77	R68 403	3,3%	R1 487	R66 916	R8 574	R46 666	R16 586	R30 080	R9 024
Automatic Washers	41 440	R56 438 379	23,5%	R8 498 818	R47 939 562	R3 926 839	R35 877 027	R13 981 926	R21 895 101	R6 568 530
Tumble Driers	83 645	R60 245 707	6,1%	R2 173 778	R58 071 929	R4 864 510	R41 127 219	R8 033 812	R33 093 408	R9 928 022
Televisions	1 001 307	R964 571 063	10,0%	R76 599 948	R887 971 114	R61 279 959	R763 303 166	R628 609 817	R134 693 349	R40 408 005
TOTALS	--	R2 095 023 477	--	R159 812 177	R1 935 211 301	R167 322 351	R1 481 825 122	R827 447 459	R654 377 663	R196 310 205
As a % of Additional Cost		--	--	7,6%	92,4%	8,0%	70,7%	39,5%	31,2%	9,4%
As a % of Total Cost		--	--	4,8%	58,0%	5,0%	44,4%	24,8%	19,6%	5,9%

	10	11 (7 +10)	12 (5 + 9)	13 (3 + 11)	14	15 (12 - 13 + 14)	16 (12 - 11)	17 (10/9)	18 (7/5)	19 (11/12)
	Import Content of Additional Domestic Inputs for Domestic Production	Total Additional Import Content of Domestic Production	Total Additional Domestic Value Added	Total Additional Imports (Final and Parts)	Additional Final Product Imports Saved	Net Additional Benefit (Cost) Overall	Domestic VA Less Production Import Content	Forex Used/ Domestic VA: Components	Forex Used/ Domestic VA: Final Product	Forex Used/ Domestic VA: Overall
EFS Stoves	R5 706 686	R18 075 858	R29 222 168	R23 025 971	R56 926 302	R63 122 499	R11 146 311	R0,31	R1,13	R0,62
Built-in Oven	R778 417	R8 037 144	R6 738 698	R21 742 052	R15 898 778	R895 423	(R1 298 445)	R0,19	R2,76	R1,19
Cooking Hob	R320 007	R1 085 153	R954 062	R3 136 826	R2 234 496	R51 732	(R131 090)	R0,52	R2,26	R1,14
Hotplates	R2 305 260	R8 880 664	R8 184 445	R13 429 297	R19 285 275	R14 040 423	(R696 219)	R1,69	R0,96	R1,09
Refrigerators	R53 941 273	R203 778 143	R191 539 719	R587 276 705	R439 032 507	R43 295 521	(R12 238 424)	R0,47	R1,96	R1,06
Chest Freezers	R2 652	R19 238	R17 598	R49 318	R43 573	R11 853	(R1 640)	R0,29	R1,93	R1,09
Automatic Washers	R1 567 166	R15 549 092	R10 495 369	R37 444 193	R27 666 364	R717 541	(R5 053 723)	R0,24	R3,56	R1,48
Tumble Driers	R2 152 177	R10 185 989	R14 792 532	R43 279 397	R33 461 931	R4 975 067	R4 606 543	R0,22	R1,65	R0,69
Televisions	R22 979 985	R651589 801	R101 687 964	R786 283 151	R689 399 536	R4 804 349	(R549 901 838)	R0,57	R10,26	R6,41
TOTALS	R89 753 623	R917 201 082	R363 632 556	R1 515 666 910	R1 283 948 763	R131 914 408	(R553 568 526)	R0,46	R4,95	R2,52
As a % of Additional Cost	4,3%	43,8%	17,4%	72,3%	188,6%	6,3%	-26,4%	--	--	--
As a % of Total Cost	2,7%	27,5%	10,9%	45,4%	38,5%	4,0%	-16,6%	--	--	--

perspective of the economy value is only added through production, not through the "destruction" of capital (depreciation). Most importantly, the high import content in capital goods used to manufacture some appliances means that to do other than to exclude overheads from value added would result in imported materials being accounted as local content.

b) Analysis

- In both projections of additional sales due to electrification, (Tables 5a and 5b) additional CIF imports as a percentage of total additional sales account for just less than 8% of the market total, whereas additional sales of local products account for nearly 93% of total market sales.
- Very large additional imports by value would occur in televisions and refrigerators (Tables 5a and 5b, Column 3). As observed previously, electrification will add significant value to local sales of televisions and refrigerators.
- Overall, projected additional annual imports would be roughly R52m under the worst scenario but as much as R150m under the better scenario. Overall projected sales of locally-produced HEDs range from R629m to R1,9bn. *This is nearly 25% of the total value of the HED retail market in FY 1991 (See Chapter Two).*
- Under the best case, although projected additional domestic sales are nearly 93% of additional sales value arising from electrification, domestic value added in the production of final products is only 8% of this. Additional local production of intermediate inputs raises the additional domestic value added as a result of electrification to 17,4% of the additional market value.
- Again under the best case, imports of additional intermediate inputs amount to nearly 40% of additional sales value. The overall additional import requirement of local production as a percentage of additional sales is over 72%. In other words, most of the value of additional appliance sales will go to pay for imports.
- Imports saved by local production amount to over 188% of the projected additional sales value, but subtracting imports of intermediate inputs from extra domestic value added (Column 16) leaves a very strongly negative figure — from R180m to R554,3m. This represents nearly 27% of the projected wholesale market value. This is almost entirely accounted for by the net import content of television production (R179 — R549m). The net benefit of local production of EFS stoves and tumble-dryers is insignificant in relation to overall additional and total market values — and to the total deficit on local production.
- The ratio of foreign exchange used in production to domestic value added is less than 1:1 only in the case of EF stoves and tumble-dryers. In the case of televisions, the ratio is almost 12:1.
- In total, the ratio of additional overall import content of additional local sales to additional domestic value added to is roughly 1:4. Its ratio to overall additional import requirements is roughly 2,5:1. Additional imports of final products are only 1/5 of overall additional imports, whilst the import content of additional local production is 4/5 of the latter. *This would seem to indicate that overall, the process of electrification will by strongly import-intensive, mainly due to the high import*

Table Six: Projected Total Domestic Value Added and Import Values Arising from Electrification of Urban Black Areas (First Year)

Table 6b: Best Case: 2 000 000 Newly Electrified Homes over Five Years (400 000 Per Year)

	0	1	2	3	4	5	6	7	8	9
Product	Projected Total Unit Sales	Projected Total Economic Cost	Avg. Percentage Imports	Total Imports of Final Products (C.I.F. Value)	Total Ex-factory Sales of Domestic Final Products	Total Domestic Value Added: Final Product	Total Inputs Required for Domestic Production	Total Imported Inputs Required	Total Domestic Inputs Required	Total Domestic Value Added: Domestic Inputs
EFS Stoves	189 605	R263 450 753	8,0%	R11 529 573	R251 921 180	R25 535 870	R170 566 517	R28 809 700	R141 756 817	R42 527 045
Built-in Oven	57 586	R109 631 735	8,0%	R5 075 339	R104 556 396	R9 644 874	R76 960 125	R26 647 692	R50 312 433	R15 093 730
Cooking Hob	50 843	R27 778 758	8,0%	R1 259 576	R26 519 183	R2 194 715	R18 260 030	R4 960 056	R13 299 974	R3 989 992
Hotplates	540 803	R50 820 659	10,0%	R4 583 954	R46 236 706	R14 595 839	R23 796 844	R14 066 285	R9 730 559	R2 912 548
Refrigerators	857 515	R1 129 942 264	12,7%	R85 640 112	R1 044 302 153	R102 564 386	R715 140 722	R200 913 798	R514 226 924	R154 268 077
Chest Freezers	87 977	R77 701 923	3,3%	R1 689 137	R76 012 786	R9 739 702	R53 009 525	R18 840 735	R34 168 791	R10 250 637
Automatic Washers	123 140	R167 708 072	23,5%	R25 254 452	R142 453 620	R11 668 701	R106 609 493	R41 547 646	R65 061 846	R19 518 554
Tumble Driers	121 045	R87 183 136	6,1%	R3 145 731	R84 037 405	R7 039 559	R59 516 274	R11 625 939	R47 890 335	R14 367 100
Televisions	1 476 307	R1 422 144 491	10,0%	R112 937 448	R1 309 207 042	R90 349 959	R1 125 399 086	R926 809 877	R198 589 209	R59 576 763
TOTALS	--	R3 336 361 792	--	R251 115 323	R3 085 246 469	R273 333 605	R2 349 258 617	R1 274 221 728	R1 075 036 889	R322 504 447,25
As a % of Total Cost		100,0%	--	100,0%	100,0%	100,0%	100,0%	100,0%	100,0%	100,0%
	10	11 (7 +10)	12 (5 + 9)	13 (3 + 11)	14	15 (12 - 13 + 14)	16 (12 - 11)	17 (10/9)	18 (7/5)	19 (11/12)
	Import Content of Total Domestic Inputs for Domestic Production	Total Import Content of Domestic Production	Total Domestic Value Added	Total Imports (Final and Parts)	Total Final Product Imports Saved	Net Total Benefit (Cost) Overall	Domestic VA Less Production Import Content	Forex Used/ Domestic VA: Components	Forex Used/ Domestic VA: Final Product	Forex Used/ Domestic VA: Overall
EFS Stoves	R13 291 748	R42 101 447	R68 062 915	R53 631 021	R132 590 095	R147 021 989	R25 961 468	R0,31	R1,13	R0,62
Built-in Oven	R2 857 667	R29 505 359	R24 738 604	R34 580 698	R58 366 400	R48 524 306	(R4 766 755)	R0,19	R2,76	R1,19
Cooking Hob	R2 074 445	R7 034 501	R6 184 707	R8 294 077	R14 485 120	R12 375 751	(R849 794)	R0,52	R2,26	R1,14
Hotplates	R4 931 474	R18 997 759	R17 508 387	R23 581 713	R41 255 586	R35 182 261	(R1 489 371)	R1,69	R0,96	R1,09
Refrigerators	R72 328 967	R273 242 765	R256 832 464	R358 882 877	R588 691 478	R486 641 064	(R16 410 302)	R0,47	R1,96	R1,06
Chest Freezers	R3 012 921	R21 853 656	R19 990 339	R23 542 793	R49 496 846	R45 944 392	(R1 863 317)	R0,29	R1,93	R1,09
Automatic Washers	R4 656 872	R46 204 519	R31 187 255	R71 458 971	R82 211 300	R41 939 584	(R15 017 264)	R0,24	R3,56	R1,48
Tumble Driers	R3 114 472	R14 740 410	R21 406 660	R17 886 142	R48 423 635	R51 944 153	R6 666 249	R0,22	R1,65	R0,69
Televisions	R33 881 235	R960 691 111	R149 926 722	R1 073 628 560	R1 016 437 036	R92 735 198	(R810 764 390)	R0,57	R10,26	R6,41
TOTALS	R140 149 800	R1 414 371 528	R595 838 052	R1 665 486 851	R2 031 957 496	R962 308 698	(R818 533 476)	R0,43	R4,66	R2,37
As a % of Total Cost	4,2%	42,4%	17,9%	49,9%	60,9%	28,8%	-24,5%	--	--	--

Table Six: Projected Total Domestic Value Added and Import Values Arising from Electrification of Urban Black Areas (First Year)

Table 6a: Worst Case: 650 000 Newly Electrified Homes over Five Years (130 000 Per Year)

	0	1	2	3	4	5	6	7	8	9
Product	Projected Total Unit Sales	Projected Total Economic Cost	Avg. Percentage Imports	Total Imports of Final Products (C.I.F. Value)	Total Ex-factory Sales of Domestic Final Products	Total Domestic Value Added: Final Product	Total Inputs Required for Domestic Production	Total Imported Inputs Required	Total Domestic Inputs Required	Total Domestic Value Added: Domestic Inputs
EFS Stoves	134 657	R187 101 445	8,0%	R8 188 247	R178 913 197	R18 135 451	R121 135 511	R20 460 509	R100 675 003	R30 202 501
Built-in Oven	46 998	R89 474 039	8,0%	R4 142 150	R85 331 889	R7 871 496	R62 809 672	R21 748 052	R41 061 620	R12 318 486
Cooking Hob	45 549	R24 886 254	8,0%	R1 128 420	R23 757 833	R1 966 187	R16 358 678	R4 443 583	R11 915 094	R3 574 528
Hotplates	370 161	R34 784 988	10,0%	R3 137 558	R31 647 429	R9 990 348	R16 288 119	R9 627 887	R6 660 232	R1 993 539
Refrigerators	425 842	R561 129 996	12,7%	R42 528 930	R518 601 066	R50 933 535	R355 139 305	R99 773 911	R255 365 394	R76 609 618
Chest Freezers	87 925	R77 655 751	3,3%	R1 688 134	R75 967 617	R9 733 914	R52 978 026	R18 829 539	R34 148 487	R10 244 546
Automatic Washers	95 168	R129 612 165	23,5%	R19 517 750	R110 094 416	R9 018 085	R82 392 500	R32 109 846	R50 282 653	R15 084 796
Tumble Driers	64 585	R46 517 284	6,1%	R1 678 431	R44 838 853	R3 756 015	R31 755 401	R6 203 116	R25 552 285	R7 665 685
Televisions	800 425	R771 059 023	10,0%	R61 232 483	R709 826 540	R48 985 987	R610 169 449	R502 498 250	R107 671 199	R32 301 360
TOTALS	--	R1 922 220 945	--	R143 242 104	R1 778 978 841	R160 391 018	R1 349 026 659	R715 694 693	R633 331 966	R189 995 059
As a % of Total Cost		100,0%	--	7,5%	92,5%	8,3%	70,2%	37,2%	32,9%	9,9%
	10	11 (7 +10)	12 (5 + 9)	13 (3 + 11)	14	15 (12 - 13 + 14)	16 (12 - 11)	17 (10/9)	18 (7/5)	19 (11/12)
	Import Content of Total Domestic Inputs for Domestic Production	Total Import Content of Domestic Production	Total Domestic Value Added	Total Imports (Final and Parts)	Total Final Product Imports Saved	Net Total Benefit (Cost) Overall	Domestic VA Less Production Import Content	Forex Used/ Domestic VA: Components	Forex Used/ Domestic VA: Final Product	Forex Used/ Domestic VA: Overall
EFS Stoves	R9 439 735	R29 900 243	R48 337 952	R38 088 490	R94 164 841	R104 414 302	R18 437 708	R0,31	R1,13	R0,62
Built-in Oven	R2 332 235	R24 080 287	R20 189 982	R28 222 437	R47 634 725	R39 602 271	(R3 890 304)	R0,19	R2,76	R1,19
Cooking Hob	R1 858 440	R6 302 023	R5 540 716	R7 430 444	R12 976 836	R11 087 107	(R761 308)	R0,52	R2,26	R1,14
Hotplates	R3 375 424	R13 003 310	R11 983 887	R16 140 869	R28 238 025	R24 081 043	(R1 019 423)	R1,69	R0,96	R1,09
Refrigerators	R35 918 608	R135 692 519	R127 543 153	R178 221 449	R292 344 536	R241 666 240	(R8 149 366)	R0,47	R1,96	R1,06
Chest Freezers	R3 011 131	R21 840 670	R19 978 460	R23 528 804	R49 467 434	R45 917 091	(R1 862 210)	R0,29	R1,93	R1,09
Automatic Washers	R3 599 036	R35 708 882	R24 102 880	R55 226 632	R63 536 505	R32 412 753	(R11 606 002)	R0,24	R3,56	R1,48
Tumble Driers	R1 661 752	R7 864 868	R11 421 701	R9 543 299	R25 836 831	R27 715 233	R3 556 832	R0,22	R1,65	R0,69
Televisions	R18 369 745	R520 867 995	R81 287 346	R582 100 479	R551 092 349	R50 279 217	(R439 580 649)	R0,57	R10,26	R6,41
TOTALS	R79 566 105	R795 260 798	R350 386 077	R938 502 902	R1 165 292 081	R577 175 257	(R444 874 721)	R0,42	R4,46	R2,27
As a % of Total Cost	4,1%	41,4%	18,2%	48,8%	60,6%	30,0%	-23,1%	--	--	--

electrification will by strongly import-intensive, mainly due to the high import content of local products. We can estimate that the overall 'local content' of additional HED sales due to electrification might be in the region of 30%, compared to a total import requirement of 70%. Thus, the 'local' value of additional sales in the Best Case scenario might be in the region of R580m (compared to nominal sales of local products of R1,9bn), whilst the import value could be as high as R827m (compared to overall additional imports of RR1,5bn).

- However, *none of these figures have been corrected for the value-added enhancing effect of protective tariffs.* As will be seen below, the effective rate of protection of most HEDs is quite high — generally over 55%. This implies that the 'true' relationship between domestic value added and import content is distorted considerably.

5. Scenarios for Appliance Take-Up Over a Five-Year Electrification Programme

Table 7 presents three scenarios of appliance take-up by urban black households over a five-year period: one at 130 000 households per year, one at 400 00 households per year, and one at the 1989-91 rate, 90 015 households per year. In each case, Table 7 presents the previous year's ownership levels of each appliance (PY value), the increase in each year (Change), the New Total for each year, the percentage change from the previous year, and the percentage which this change represents as a proportion of the electrification rate.

Table 7 is largely-self explanatory, and is presented mainly to show how subsequent five-year projections have been derived. But it should be noted that the projections for appliance take-up have been calculated by multiplying the rate of take-up for each appliance in 1989-91 by the *rate* of electrification, which, at a constant sum per annum, of course diminishes. This means that the rate of appliance take-up also diminishes over time. This method is not perfect, but provides an approximation of appliance take-up which *holds all other factors equal.*

6. Projected Five-Year Market Totals Compared to a Counterfactual of the 1989-91 Rate of Electrification

Table 8 presents the results of multiplying the five-year figures for appliance take-up in Table 7 by the core cost data in the Appendix exactly as was done in Tables 1-3. It presents the additional cost to the economy of the electrification scenarios (Tables 8a 1 and 2) and the total cost to the economy over the five year period, including the counterfactual for the 1989-91 rate of electrification. (Tables 8b 1-3). This table establishes the aggregate data used as the basis for Tables 9 and 10.

Table 9 repeats this exercise, this time using the format employed in tables 4-6 to obtain the value-added and import data, this time for the five-year scenarios of additional cost. Table 10 presents aggregated date for the total cost of the electrification programme.

Table Seven: Scenarios of Electrification and Appliance Take-Up by Urban Black Households Over Five Years

Table 7a: Worst Case: 650 000 Newly Electrified Homes over Five Years (130 000 Newly Electrified Homes Per Year)

	y1	y2	y3	y4	y5	TOTAL
ELECTRIFICATION						
PY Value	1 064 880	1 194 880	1 324 880	1 454 880	1 584 880	--
Change	130 000	130 000	130 000	130 000	130 000	650 000
New Total	1 194 880	1 324 880	1 454 880	1 584 880	1 714 880	1 714 880
% Change from PY	12,21%	10,88%	9,81%	8,94%	8,20%	--
% of Electrification Rate	100,00%	100,00%	100,00%	100,00%	100,00%	--
EFS Stoves						
PY Value	542 880	569 337	594 064	617 334	639 354	--
Change	26 457	24 727	23 270	22 020	20 935	117 409
New Value	569 337	594 064	617 334	639 354	660 289	660 289
% Change from PY	4,87%	4,34%	3,92%	3,57%	3,27%	--
% of Electrification Rate	39,92%	39,92%	39,92%	39,92%	39,92%	--
Built-in Oven						
PY Value	41 760	46 858	51 956	57 054	62 152	--
Change	5 098	5 098	5 098	5 098	5 098	25 490
New Value	46 858	51 956	57 054	62 152	67 250	67 250
% Change from PY	12,21%	10,88%	9,81%	8,94%	8,20%	--
% of Electrification Rate	100,00%	100,00%	100,00%	100,00%	100,00%	--
Cooking Hob						
PY Value	20 880	23 429	25 978	28 527	31 076	--
Change	2 549	2 549	2 549	2 549	2 549	12 745
New Value	23 429	25 978	28 527	31 076	33 625	33 625
% Change from PY	12,21%	10,88%	9,81%	8,94%	8,20%	--
% of Electrification Rate	100,00%	100,00%	100,00%	100,00%	100,00%	--
Hotplates						
PY Value	417 600	499 761	587 389	680 276	778 240	--
Change	82 161	87 628	92 887	97 963	102 878	463 518
New Value	499 761	587 389	680 276	778 240	881 118	881 118
% Change from PY	19,67%	17,53%	15,81%	14,40%	13,22%	--
% of Electrification Rate	161,16%	161,16%	161,16%	161,16%	161,16%	--
Refrigerators						
PY Value	1 066 560	1 274 402	1 495 728	1 730 002	1 976 759	--
Change	207 842	221 325	234 275	246 757	258 825	1 169 024
New Value	1 274 402	1 495 728	1 730 002	1 976 759	2 235 584	2 235 584
% Change from PY	19,49%	17,37%	15,66%	14,26%	13,09%	--
% of Electrification Rate	159,63%	159,63%	159,63%	159,63%	159,63%	--
Chest Freezers						
PY Value	133 320	133 345	133 368	133 388	133 406	--
Change	25	22	20	18	17	103
New Value	133 345	133 368	133 388	133 406	133 423	133 423
% Change from PY	0,02%	0,02%	0,02%	0,01%	0,01%	--
% of Electrification Rate	0,15%	0,15%	0,15%	0,15%	0,15%	--
Automatic Washers						
PY Value	133 320	146 788	160 003	172 995	185 786	--
Change	13 468	13 215	12 992	12 791	12 610	65 076
New Value	146 788	160 003	172 995	185 786	198 396	198 396
% Change from PY	10,10%	9,00%	8,12%	7,39%	6,79%	--
% of Electrification Rate	82,75%	82,75%	82,75%	82,75%	82,75%	--
Twin-tub Washers						
PY Value	44 440	37 845	32 839	28 922	25 780	--
Change	(6 595)	(5 006)	(3 917)	(3 142)	(2 571)	(21 231)
New Value	37 845	32 839	28 922	25 780	23 209	23 209
% Change from PY	-14,84%	-13,23%	-11,93%	-10,86%	-9,97%	--
% of Electrification Rate	-121,57%	-121,57%	-121,57%	-121,57%	-121,57%	--
Tumble Driers						
PY Value	22 220	49 405	103 272	204 824	388 239	--
Change	27 185	53 867	101 552	183 415	319 142	685 161
New Value	49 405	103 272	204 824	388 239	707 381	707 381
% Change from PY	122,34%	109,03%	98,33%	89,55%	82,20%	--
% of Electrification Rate	1002,16%	1002,16%	1002,16%	1002,16%	1002,16%	--
Televisions						
PY Value	1 280 160	1 605 585	1 969 329	2 371 701	2 812 987	--
Change	325 425	363 744	402 373	441 285	480 461	2 013 288
New Value	1 605 585	1 969 329	2 371 701	2 812 987	3 293 448	3 293 448
% Change from PY	25,42%	22,65%	20,43%	18,61%	17,08%	--
% of Electrification Rate	208,23%	208,23%	208,23%	208,23%	208,23%	--

Table 7b: Best Case: 2 000 000 Newly Electrified Homes over Five Years (400 000 Newly Electrified Homes Per Year)

	y1	y2	y3	y4	y5	TOTAL
ELECTRIFICATION						
PY Value	1 064 880	1 464 880	1 864 880	2 264 880	2 664 880	--
Change	400 000	400 000	400 000	400 000	400 000	2 000 000
New Total	1 464 880	1 864 880	2 264 880	2 664 880	3 064 880	3 064 880
% Change from PY	37,56%	27,31%	21,45%	17,66%	15,01%	--
% of Electrification Rate	100,00%	100,00%	100,00%	100,00%	100,00%	--
EFS Stoves						
PY Value	542 880	624 285	692 335	751 616	804 607	--
Change	81 405	68 050	59 281	52 991	48 212	309 939
New Value	624 285	692 335	751 616	804 607	852 819	852 819
% Change from PY	15,00%	10,90%	8,56%	7,05%	5,99%	--
% of Electrification Rate	39,92%	39,92%	39,92%	39,92%	39,92%	--
Built-in Oven						
PY Value	41 760	57 446	73 133	88 819	104 505	--
Change	15 686	15 686	15 686	15 686	15 686	78 431
New Value	57 446	73 133	88 819	104 505	120 191	120 191
% Change from PY	37,56%	27,31%	21,45%	17,66%	15,01%	--
% of Electrification Rate	100,00%	100,00%	100,00%	100,00%	100,00%	--
Cooking Hob						
PY Value	20 880	28 723	36 566	44 409	52 253	--
Change	7 843	7 843	7 843	7 843	7 843	39 216
New Value	28 723	36 566	44 409	52 253	60 096	60 096
% Change from PY	37,56%	27,31%	21,45%	17,66%	15,01%	--
% of Electrification Rate	100,00%	100,00%	100,00%	100,00%	100,00%	--
Hotplates						
PY Value	417 600	670 403	965 426	1 299 153	1 668 927	--
Change	252 803	295 023	333 726	369 775	403 722	1 655 049
New Value	670 403	965 426	1 299 153	1 668 927	2 072 649	2 072 649
% Change from PY	60,54%	44,01%	34,57%	28,46%	24,19%	--
% of Electrification Rate	161,16%	161,16%	161,16%	161,16%	161,16%	--
Refrigerators						
PY Value	1 066 560	1 706 075	2 449 713	3 288 458	4 215 529	--
Change	639 515	743 638	838 745	927 071	1 010 044	4 159 013
New Value	1 706 075	2 449 713	3 288 458	4 215 529	5 225 573	5 225 573
% Change from PY	59,96%	43,59%	34,24%	28,19%	23,96%	--
% of Electrification Rate	159,63%	159,63%	159,63%	159,63%	159,63%	--
Chest Freezers						
PY Value	133 320	133 397	133 454	133 498	133 535	--
Change	77	56	44	36	31	246
New Value	133 397	133 454	133 498	133 535	133 566	133 566
% Change from PY	0,06%	0,04%	0,03%	0,03%	0,02%	--
% of Electrification Rate	0,15%	0,15%	0,15%	0,15%	0,15%	--
Automatic Washers						
PY Value	133 320	174 760	214 248	252 275	289 143	--
Change	41 440	39 488	38 027	36 868	35 914	191 737
New Value	174 760	214 248	252 275	289 143	325 057	325 057
% Change from PY	31,08%	22,60%	17,75%	14,61%	12,42%	--
% of Electrification Rate	82,75%	82,75%	82,75%	82,75%	82,75%	--
Twin-tub Washers						
PY Value	44 440	24 146	16 131	11 924	9 364	--
Change	(20 294)	(8 016)	(4 206)	(2 560)	(1 709)	(36 785)
New Value	24 146	16 131	11 924	9 364	7 655	7 655
% Change from PY	-45,67%	-33,20%	-26,08%	-21,47%	-18,25%	--
% of Electrification Rate	-121,57%	-121,57%	-121,57%	-121,57%	-121,57%	--
Tumble Driers						
PY Value	22 220	105 865	395 566	1 245 855	3 450 915	--
Change	83 645	289 701	850 289	2 205 060	5 191 045	8 619 740
New Value	105 865	395 566	1 245 855	3 450 915	8 641 960	8 641 960
% Change from PY	376,44%	273,65%	214,95%	176,99%	150,43%	--
% of Electrification Rate	1002,16%	1002,16%	1002,16%	1002,16%	1002,16%	--
Televisions						
PY Value	1 280 160	2 281 467	3 578 692	5 177 061	7 080 949	--
Change	1 001 307	1 297 226	1 598 368	1 903 888	2 213 183	8 013 972
New Value	2 281 467	3 578 692	5 177 061	7 080 949	9 294 132	9 294 132
% Change from PY	78,22%	56,86%	44,66%	36,78%	31,26%	--
% of Electrification Rate	208,23%	208,23%	208,23%	208,23%	208,23%	--

Table 7C: Counterfactual: Electrification at 1989-1991 Rate (90 015 Newly Electrified Homes Per Year)

	y1	y2	y3	y4	y5	TOTAL
ELECTRIFICATION						
PY Value	1 064 880	1 154 895	1 244 910	1 334 925	1 424 940	--
Change	90 015	90 015	90 015	90 015	90 015	450 075
New Total	1 154 895	1 244 910	1 334 925	1 424 940	1 514 955	1 514 955
% Change from PY	8,45%	7,79%	7,23%	6,74%	6,32%	--
% of Electrification Rate	100,00%	100,00%	100,00%	100,00%	100,00%	--
EFS Stoves						
PY Value	542 880	561 199	578 661	595 363	611 390	--
Change	18 319	17 461	16 703	16 026	15 418	83 927
New Value	561 199	578 661	595 363	611 390	626 807	626 807
% Change from PY	3,37%	3,11%	2,89%	2,69%	2,52%	--
% of Electrification Rate	39,92%	39,92%	39,92%	39,92%	39,92%	--
Built-in Oven						
PY Value	41 760	45 290	48 820	52 350	55 880	--
Change	3 530	3 530	3 530	3 530	3 530	17 650
New Value	45 290	48 820	52 350	55 880	59 410	59 410
% Change from PY	8,45%	7,79%	7,23%	6,74%	6,32%	--
% of Electrification Rate	100,00%	100,00%	100,00%	100,00%	100,00%	--
Cooking Hob						
PY Value	20 880	22 645	24 410	26 175	27 940	--
Change	1 765	1 765	1 765	1 765	1 765	8 825
New Value	22 645	24 410	26 175	27 940	29 705	29 705
% Change from PY	8,45%	7,79%	7,23%	6,74%	6,32%	--
% of Electrification Rate	100,00%	100,00%	100,00%	100,00%	100,00%	--
Hotplates						
PY Value	417 600	474 490	534 092	596 330	661 135	--
Change	56 890	59 602	62 238	64 805	67 309	310 844
New Value	474 490	534 092	596 330	661 135	728 444	728 444
% Change from PY	13,62%	12,56%	11,65%	10,87%	10,18%	--
% of Electrification Rate	161,16%	161,16%	161,16%	161,16%	161,16%	--
Refrigerators						
PY Value	1 066 560	1 210 475	1 361 078	1 518 174	1 681 587	--
Change	143 915	150 603	157 096	163 413	169 568	784 594
New Value	1 210 475	1 361 078	1 518 174	1 681 587	1 851 154	1 851 154
% Change from PY	13,49%	12,44%	11,54%	10,76%	10,08%	--
% of Electrification Rate	159,63%	159,63%	159,63%	159,63%	159,63%	--
Chest Freezers						
PY Value	133 320	133 337	133 354	133 368	133 382	--
Change	17	16	15	14	13	75
New Value	133 337	133 354	133 368	133 382	133 395	133 395
% Change from PY	0,01%	0,01%	0,01%	0,01%	0,01%	--
% of Electrification Rate	0,15%	0,15%	0,15%	0,15%	0,15%	--
Automatic Washers						
PY Value	133 320	142 646	151 846	160 931	169 911	--
Change	9 326	9 200	9 085	8 980	8 882	45 473
New Value	142 646	151 846	160 931	169 911	178 793	178 793
% Change from PY	6,99%	6,45%	5,98%	5,58%	5,23%	--
% of Electrification Rate	82,75%	82,75%	82,75%	82,75%	82,75%	--
Twin-tub Washers						
PY Value	44 440	39 873	36 095	32 922	30 223	--
Change	(4 567)	(3 778)	(3 173)	(2 699)	(2 321)	(16 538)
New Value	39 873	36 095	32 922	30 223	27 902	27 902
% Change from PY	-10,28%	-9,48%	-8,79%	-8,20%	-7,68%	--
% of Electrification Rate	-121,57%	-121,57%	-121,57%	-121,57%	-121,57%	--
Tumble Driers						
PY Value	22 220	41 043	73 103	126 075	211 272	--
Change	18 823	32 059	52 972	85 197	133 751	322 803
New Value	41 043	73 103	126 075	211 272	345 023	345 023
% Change from PY	84,71%	78,11%	72,46%	67,58%	63,31%	--
% of Electrification Rate	1002,16%	1002,16%	1002,16%	1002,16%	1002,16%	--
Televisions						
PY Value	1 280 160	1 505 492	1 749 831	2 013 292	2 295 981	--
Change	225 332	244 340	263 461	282 689	302 016	1 317 837
New Value	1 505 492	1 749 831	2 013 292	2 295 981	2 597 997	2 597 997
% Change from PY	17,60%	16,23%	15,06%	14,04%	13,15%	--
% of Electrification Rate	208,23%	208,23%	208,23%	208,23%	208,23%	--

Table Eight: Projected Total Economic Cost of Electrification and Resulting Total Economic Cost Over Five Years

Table 8a (1): Worst Case (Additional Cost)

Product	Additional Unit Sales	Avg. 1991/2 Unit Import %	Additional Unit Production	Avg. Ex-Factory Price	Additional Ex-factory Domestic Sales	Additional Unit Imports	Avg. CIF Import Price	Additional CIF Imports	Total Additional Economic Cost
EFS Stoves	117 409	8,0%	108 016	R1 444,20	R155 997 154	9 393	R760,10	R7 139 458	R163 136 611
Built-in Oven	25 490	8,0%	23 451	R1 973,53	R46 281 220	2 039	R1 101,68	R2 246 566	R48 527 786
Cooking Hob	12 745	8,0%	11 725	R566,94	R6 647 693	1 020	R309,67	R315 744	R6 963 437
Hotplates	463 518	10,0%	417 166	R95,00	R39 629 081	46 352	R84,76	R3 928 867	R43 557 948
Refrigerators	1 169 024	12,7%	1 020 558	R1 394,99	R1 423 665 896	148 466	R786,38	R116 750 604	R1 540 416 500
Chest Freezers	103	3,3%	100	R893,49	R89 167	3	R581,81	R1 981	R91 148
Automatic Washers	65 076	23,5%	49 783	R1 512,21	R75 283 104	15 293	R872,71	R13 346 333	R88 629 437
Tumble Driers	685 161	6,1%	643 367	R739,37	R475 682 938	41 795	R426,03	R17 806 008	R493 488 947
Televisions	2 013 288	10,0%	1 811 959	R985,35	R1 785 408 555	201 329	R765,00	R154 016 500	R1 939 425 055
Totals					R4 008 684 808			R315 552 063	R4 324 236 870

Table 8a (2): Best Case (Additional Cost)

Product	Additional Unit Sales	Avg. 1991/2 Unit Import %	Additional Unit Production	Avg. Ex-Factory Price	Additional Ex-factory Domestic Sales	Additoinal Unit Imports	Avg. CIF Import Price	Additional CIF Imports	Total Additional Economic Cost
EFS Stoves	309 939	8,0%	285 144	R1 444,20	R411 804 245	24 795	R760,10	R18 846 876	R430 651 121
Built-in Oven	78 431	8,0%	72 157	R1 973,53	R142 403 753	6 275	R1 101,68	R6 912 512	R149 316 265
Cooking Hob	39 216	8,0%	36 078	R566,94	R20 454 441	3 137	R309,67	R971 520	R21 425 961
Hotplates	1 655 049	10,0%	1 489 544	R95,00	R141 500 727	165 505	R84,76	R14 028 526	R155 529 253
Refrigerators	4 159 013	12,7%	3 630 818	R1 394,99	R5 064 947 308	528 195	R786,38	R415 361 257	R5 480 308 564
Chest Freezers	246	3,3%	237	R893,49	R212 123	8	R581,81	R4 714	R216 837
Automatic Washers	191 737	23,5%	146 679	R1 512,21	R221 809 551	45 058	R872,71	R39 322 824	R261 132 374
Tumble Driers	8 619 740	6,1%	8 093 936	R739,37	R5 984 375 535	525 804	R426,03	R224 010 221	R6 208 385 756
Televisions	8 013 972	10,0%	7 212 575	R985,35	R7 106 890 216	801 397	R765,00	R613 068 843	R7 719 959 059
Totals					R19 094 397 899			R1 332 527 293	R20 426 925 192

Table 8b (1): Worst Case (Total Cost)

Product	Total Unit Sales	Avg. 1991/2 Unit Import %	Total Unit Production	Avg. Ex-Factory Price	Total Ex-factory Domestic Sales	Total Unit Imports	Avg. CIF Import Price	Total CIF Imports	Total Economic Cost
EFS Stoves	658 409	8,0%	605 736	R1 444,20	R874 803 183	52 673	R760,10	R40 036 759	R914 839 942
Built-in Oven	234 990	8,0%	216 191	R1 973,53	R426 659 444	18 799	R1 101,68	R20 710 750	R447 370 194
Cooking Hob	227 745	8,0%	209 525	R566,94	R118 789 166	18 220	R309,67	R5 642 102	R124 431 268
Hotplates	1 903 518	10,0%	1 713 166	R95,00	R162 743 897	190 352	R84,76	R16 134 595	R178 878 492
Refrigerators	2 259 024	12,7%	1 972 128	R1 394,99	R2 751 094 536	286 896	R786,38	R225 609 076	R2 976 703 612
Chest Freezers	439 603	3,3%	425 096	R893,49	R379 818 514	14 507	R581,81	R8 440 234	R388 258 748
Automatic Washers	473 576	23,5%	362 286	R1 512,21	R547 853 394	111 290	R872,71	R97 124 504	R644 977 898
Tumble Driers	872 161	6,1%	818 960	R739,37	R605 510 320	53 202	R426,03	R22 665 774	R628 176 094
Televisions	4 388 288	10,0%	3 949 459	R985,35	R3 891 588 195	438 829	R765,00	R335 704 000	R4 227 292 195
Totals					R9 758 860 650			R772 067 794	R10 530 928 444

Table 8b (2): Best Case (Total Cost)

Product	Total Unit Sales	Avg. 1991/2 Unit Import %	Total Unit Production	Avg. Ex-Factory Price	Total Ex-factory Domestic Sales	Total Unit Imports	Avg. CIF Import Price	Total CIF Imports	Total Economic Cost
EFS Stoves	850 939	8,0%	782 864	R1 444,20	R1 130 610 275	68 075	R760,10	R51 744 177	R1 182 354 452
Built-in Oven	287 931	8,0%	264 897	R1 973,53	R522 781 978	23 035	R1 101,68	R25 376 696	R548 158 673
Cooking Hob	254 216	8,0%	233 878	R566,94	R132 595 914	20 337	R309,67	R6 297 878	R138 893 792
Hotplates	3 095 049	10,0%	2 785 544	R95,00	R264 615 543	309 505	R84,76	R26 234 254	R290 849 797
Refrigerators	5 249 013	12,7%	4 582 388	R1 394,99	R6 392 375 948	666 625	R786,38	R524 219 729	R6 916 595 677
Chest Freezers	439 746	3,3%	425 234	R893,49	R379 941 471	14 512	R581,81	R8 442 966	R388 384 437
Automatic Washers	600 237	23,5%	459 181	R1 512,21	R694 379 841	141 056	R872,71	R123 100 994	R817 480 835
Tumble Driers	8 806 740	6,1%	8 269 529	R739,37	R6 114 202 917	537 211	R426,03	R228 869 986	R6 343 072 903
Televisions	10 388 972	10,0%	9 350 075	R985,35	R9 213 069 856	1 038 897	R765,00	R794 756 343	R10 007 826 199
Totals					R24 844 573 741			R1 789 043 024	R26 633 616 766

Table 8c: Counterfactual (Total Cost)

Product	Total Unit Sales	Avg. 1991/2 Unit Import %	Total Unit Production	Avg. Ex-Factory Price	Total Ex-factory Domestic Sales	Total Unit Imports	Avg. CIF Import Price	Total CIF Imports	Total Economic Cost
EFS Stoves	624 927	8,0%	574 933	R1 444,20	R830 317 246	49 994	R760,10	R38 000 789	R868 318 036
Built-in Oven	227 150	8,0%	208 978	R1 973,53	R412 424 409	18 172	R1 101,68	R20 019 758	R432 444 167
Cooking Hob	223 825	8,0%	205 919	R566,94	R116 744 489	17 906	R309,67	R5 544 987	R122 289 476
Hotplates	1 750 844	10,0%	1 575 759	R95,00	R149 690 836	175 084	R84,76	R14 840 502	R164 531 338
Refrigerators	1 874 594	12,7%	1 636 521	R1 394,99	R2 282 926 868	238 073	R786,38	R187 216 039	R2 470 142 906
Chest Freezers	439 575	3,3%	425 069	R893,49	R379 794 453	14 506	R581,81	R8 439 699	R388 234 152
Automatic Washers	453 973	23,5%	347 289	R1 512,21	R525 175 092	106 684	R872,71	R93 104 051	R618 279 143
Tumble Driers	509 803	6,1%	478 705	R739,37	R353 937 889	31 098	R426,03	R13 248 785	R367 186 674
Televisions	3 692 837	10,0%	3 323 553	R985,35	R3 274 854 077	369 284	R765,00	R282 502 042	R3 557 356 120
Totals	--	--	--	--	R8 325 865 359	--	--	R662 916 652	R8 988 782 011

Table Nine: Projected Additional Domestic Value Added and CIF Import Values Arising From Electrification of Black Urban Areas Over Five Years

Table 9a: Worst Case: 650 000 Newly Electrified Homes over Five Years (130 000 Newly Electrified Homes Per Year)

	0	1	2	3	4	5	6	7	8	9
Product	Projected Additional Unit Sales	Projected Additional Economic Cost	Avg. Percentage Imports	Additional Imports of Final Products (C.I.F. Value)	Additional Ex-factory Sales of Domestic Final Products	Additional Domestic Value Added: Final Product	Additional Inputs Required for Domestic Production	Additional Imported Inputs Required	Additional Domestic Inputs Required	Additional Domestic Value Added: Domestic Inputs
EFS Stoves	117 409	R163 136 611	8,0%	R7 139 458	R155 997 154	R15 812 577	R105 619 905	R17 839 830	R87 780 075	R26 334 022
Built-in Oven	25 490	R48 527 786	8,0%	R2 246 566	R46 281 220	R4 269 242	R34 065 907	R11 795 430	R22 270 477	R6 681 143
Cooking Hob	12 745	R6 963 437	8,0%	R315 744	R6 647 693	R550 160	R4 577 331	R1 243 362	R3 333 970	R1 000 191
Hotplates	463 518	R43 557 948	10,0%	R3 928 867	R39 629 081	R12 509 968	R20 396 070	R12 056 091	R8 339 978	R2 496 320
Refrigerators	1 169 024	R1 540 416 500	12,7%	R116 750 604	R1 423 665 896	R139 822 961	R974 929 960	R273 899 773	R701 030 188	R210 309 056
Chest Freezers	103	R91 148	3,3%	R1 981	R89 167	R11 425	R62 183	R22 101	R40 082	R12 025
Automatic Washers	65 076	R88 629 437	23,5%	R13 346 333	R75 283 104	R6 166 611	R56 340 397	R21 956 871	R34 383 526	R10 315 058
Tumble Driers	685 161	R493 488 947	6,1%	R17 806 008	R475 682 938	R39 846 521	R336 884 223	R65 807 133	R271 077 090	R81 323 127
Televisions	2 013 288	R1 939 425 055	10,0%	R154 016 500	R1 785 408 555	R123 213 200	R1 534 743 621	R1 263 921 007	R270 822 614	R81 246 784
TOTALS	--	R4 324 236 870	--	R315 552 063	R4 008 684 808	R342 202 664	R3 067 619 598	R1 668 541 599	R1 399 077 999	R419 717 726
As a % of Additional Cost		100,0%	--	7,3%	92,7%	7,9%	70,9%	38,6%	32,4%	9,7%
	10	11 (7 +10)	12 (5 + 9)	13 (3 + 11)	14	15 (12 - 13 + 14)	16 (12 - 11)	17 (10/9)	18 (7/5)	19 (11/12)
	Import Content of Additional Domestic Inputs for Domestic Production	Total Additional Import Content of Domestic Production	Total Additional Domestic Value Added	Total Additional Imports (Final and Parts)	Additional Final Product Imports Saved	Net Additional Benefit (Cost) Overall	Domestic VA Less Production Import Content	Forex Used/ Domestic VA: Components	Forex Used/ Domestic VA: Final Product	Forex Used/ Domestic VA: Overall
EFS Stoves	R8 230 649	R26 070 479	R42 146 599	R33 209 937	R82 103 765	R91 040 427	R16 076 120	R0,31	R1,13	R0,62
Built-in Oven	R1 264 928	R13 060 358	R10 950 385	R15 306 925	R25 835 514	R21 478 974	(R2 109 974)	R0,19	R2,76	R1,19
Cooking Hob	R520 011	R1 763 373	R1 550 351	R2 079 117	R3 631 056	R3 102 290	(R213 022)	R0,52	R2,26	R1,14
Hotplates	R4 226 724	R16 282 815	R15 006 288	R20 211 682	R35 359 806	R30 154 412	(R1 276 527)	R1,69	R0,96	R1,09
Refrigerators	R98 603 918	R372 503 691	R350 132 017	R489 254 295	R802 545 488	R663 423 211	(R22 371 674)	R0,47	R1,96	R1,06
Chest Freezers	R3 534	R25 635	R23 450	R27 617	R58 062	R53 895	(R2 186)	R0,29	R1,93	R1,09
Automatic Washers	R2 461 038	R24 417 909	R16 481 668	R37 764 243	R43 446 575	R22 164 000	(R7 936 241)	R0,24	R3,56	R1,48
Tumble Driers	R17 629 067	R83 436 200	R121 169 648	R101 242 208	R274 095 766	R294 023 206	R37 733 448	R0,22	R1,65	R0,69
Televisions	R46 204 950	R1 310 125 957	R204 459 984	R1 464 142 457	R1 386 148 501	R126 466 029	(R1 105 665 973)	R0,57	R10,26	R6,41
TOTALS	R179 144 820	R1 847 686 418	R761 920 390	R2 163 238 481	R2 653 224 534	R1 251 906 443	(R1 085 766 028)	R0,43	R4,88	R2,43
As a % of Additional C	4,1%	42,7%	17,6%	50,0%	61,4%	29,0%	-25,1%	--	--	--

Table Nine: Projected Additional Domestic Value Added and CIF Import Values Arising From Electrification of Black Urban Areas Over Five Years

Table 9b: Best Case: 2 00 000 Newly Electrified Homes over Five Years
(400 000 Newly Electrified Homes Per Year)

	0	1	2	3	4	5	6	7	8	9
Product	Projected Additional Unit Sales	Projected Additional Economic Cost	Avg. Percentage Imports	Additional Imports of Final Products (C.I.F. Value)	Additional Ex-factory Sales of Domestic Final Products	Additional Domestic Value Added: Final Product	Additional Inputs Required for Domestic Production	Additional Imported Inputs Required	Additional Domestic Inputs Required	Additional Domestic Value Added: Domestic Inputs
EFS Stoves	309 939	R430 651 121	8,0%	R18 846 876	R411 804 245	R41 742 341	R278 817 429	R47 093 923	R231 723 506	R69 517 052
Built-in Oven	78 431	R149 316 265	8,0%	R6 912 512	R142 403 753	R13 136 128	R104 818 176	R36 293 632	R68 524 544	R20 557 363
Cooking Hob	39 216	R21 425 961	8,0%	R971 520	R20 454 441	R1 692 800	R14 084 096	R3 825 728	R10 258 368	R3 077 510
Hotplates	1 655 049	R155 529 253	10,0%	R14 028 526	R141 500 727	R44 668 447	R72 826 788	R43 047 823	R29 778 965	R8 913 432
Refrigerators	4 159 013	R5 480 308 564	12,7%	R415 361 257	R5 064 947 308	R497 445 315	R3 468 488 564	R974 447 671	R2 494 040 893	R748 212 268
Chest Freezers	246	R216 837	3,3%	R4 714	R212 123	R27 180	R147 930	R52 577	R95 352	R28 606
Automatic Washers	191 737	R261 132 374	23,5%	R39 322 824	R221 809 551	R18 168 926	R165 997 914	R64 692 388	R101 305 526	R30 391 658
Tumble Driers	8 619 740	R6 208 385 756	6,1%	R224 010 221	R5 984 375 535	R501 293 039	R4 238 204 783	R827 893 049	R3 410 311 734	R1 023 093 520
Televisions	8 013 972	R7 719 959 059	10,0%	R613 068 843	R7 106 890 216	R490 455 075	R6 109 108 412	R5 031 088 157	R1 078 020 254	R323 406 076
TOTALS	--	R20 426 925 192	--	R1 332 527 293	R19 094 397 899	R1 608 629 250	R14 452 494 091	R7 028 434 949	R7 424 059 143	R2 227 197 485
As a % of Additional Cost		100,00%	--	6,52%	93,48%	7,88%	70,75%	34,41%	36,34%	10,90%

	10	11 (7 +10)	12 (5 + 9)	13 (3 + 11)	14	15 (12 - 13 + 14)	16 (12 - 11)	17 (10/9)	18 (7/5)	19 (11/12)
	Import Content of Additional Domestic Inputs for Domestic Production	Total Additional Import Content of Domestic Production	Total Additional Domestic Value Added	Total Additional Imports (Final and Parts)	Additional Final Product Imports Saved	Net Additional Benefit (Cost) Overall	Domestic VA Less Production Import Content	Forex Used/ Domestic VA: Components	Forex Used/ Domestic VA: Final Product	Forex Used/ Domestic VA: Overall
EFS Stoves	R21 727 423	R68 821 346	R111 259 393	R87 668 222	R216 739 076	R240 330 247	R42 438 046	R0,31	R1,13	R0,62
Built-in Oven	R3 892 086	R40 185 718	R33 693 491	R47 098 230	R79 493 888	R66 089 149	(R6 492 227)	R0,19	R2,76	R1,19
Cooking Hob	R1 600 035	R5 425 763	R4 770 310	R6 397 283	R11 172 480	R9 545 508	(R655 452)	R0,52	R2,26	R1,14
Hotplates	R15 092 060	R58 139 884	R53 581 879	R72 168 410	R126 256 734	R107 670 203	(R4 558 005)	R1,69	R0,96	R1,09
Refrigerators	R350 801 162	R1 325 248 833	R1 245 657 582	R1 740 610 089	R2 855 199 820	R2 360 247 313	(R79 591 250)	R0,47	R1,96	R1,06
Chest Freezers	R8 408	R60 985	R55 786	R65 699	R138 127	R128 214	(R5 200)	R0,29	R1,93	R1,09
Automatic Washers	R7 251 053	R71 943 441	R48 560 584	R111 266 265	R128 008 341	R65 302 661	(R23 382 857)	R0,24	R3,56	R1,48
Tumble Driers	R221 784 193	R1 049 677 242	R1 524 386 559	R1 273 687 463	R3 448 288 479	R3 698 987 576	R474 709 317	R0,22	R1,65	R0,69
Televisions	R183 920 653	R5 215 008 810	R813 861 151	R5 828 077 654	R5 517 619 591	R503 403 089	(R4 401 147 659)	R0,57	R10,26	R6,41
TOTALS	R806 077 073	R7 834 512 021	R3 835 826 735	R9 167 039 314	R12 382 916 537	R7 051 703 958	(R3 998 685 286)	R0,36	R4,37	R2,04
As a % of Additional C	3,95%	38,35%	18,78%	44,88%	60,62%	34,52%	-19,58%	--	--	--

Table Ten: Projected Total Domestic Value Added and Import Values Arising from Electrification of Urban Black Areas Over Five Years

Table 10a: Worst Case: 650 000 Newly Electrified Homes over Five Years (130 000 Per Year)

	0	1	2	3	4	5	6	7	8	9
Product	Projected Total Unit Sales	Projected Total Economic Cost	Avg. Percentage Imports	Total Imports of Final Products (C.I.F. Value)	Total Ex-factory Sales of Domestic Final Products	Total Domestic Value Added: Final Product	Total Inputs Required for Domestic Production	Total Imported Inputs Required	Total Domestic Inputs Required	Total Domestic Value Added: Domestic Inputs
EFS Stoves	658 409	R914 839 942	8,0%	R40 036 759	R874 803 183	R88 674 007	R200 084 939	R100 042 469	R79 579 237	R147 676 327
Built-in Oven	234 990	R447 370 194	8,0%	R20 710 750	R426 659 444	R39 357 482	R217 480 516	R108 740 258	R27 590 812	R61 592 430
Cooking Hob	227 745	R124 431 268	8,0%	R5 642 102	R118 789 166	R9 830 936	R44 435 831	R22 217 915	R8 847 842	R17 872 642
Hotplates	1 903 518	R178 878 492	10,0%	R16 134 595	R162 743 897	R51 374 416	R99 020 982	R49 510 491	R23 299 055	R10 251 584
Refrigerators	2 259 024	R2 976 703 612	12,7%	R225 609 076	R2 751 094 536	R270 194 141	R1 058 568 826	R529 284 413	R247 986 403	R406 401 598
Chest Freezers	439 603	R388 258 748	3,3%	R8 440 234	R379 818 514	R48 667 064	R188 285 692	R94 142 846	R31 115 008	R51 220 091
Automatic Washers	473 576	R644 977 898	23,5%	R97 124 504	R547 853 394	R44 875 920	R319 570 948	R159 785 474	R39 436 415	R75 065 176
Tumble Driers	872 161	R628 176 094	6,1%	R22 665 774	R605 510 320	R50 721 768	R167 535 537	R83 767 769	R54 564 326	R103 518 518
Televisions	4 388 288	R4 227 292 195	10,0%	R335 704 000	R3 891 588 195	R268 563 200	R5 509 842 614	R2 754 921 307	R187 457 114	R177 090 574
TOTALS	--	R10 530 928 444	--	R772 067 794	R9 758 860 650	R872 258 934	R7 804 825 885	R3 902 412 942	R699 876 212	R1 050 688 939
As a % of Total Cost		100,0%	--	7,3%	92,7%	8,3%	74,1%	37,1%	6,6%	10,0%

	10	11 (7 +10)	12 (5 + 9)	13 (3 + 11)	14	15 (12 - 13 + 14)	16 (12 - 11)	17 (10/9)	18 (7/5)	19 (11/12)
	Import Content of Total Domestic Inputs for Domestic Production	Total Import Content of Domestic Production	Total Domestic Value Added	Total Imports (Final and Parts)	Total Final Product Imports Saved	Net Total Benefit (Cost) Overall	Domestic VA Less Production Import Content	Forex Used/ Domestic VA: Components	Forex Used/ Domestic VA: Final Product	Forex Used/ Domestic VA: Overall
EFS Stoves	R46 155 957	R146 198 427	R236 350 334	R186 235 186	R460 422 728	R510 537 876	R90 151 907	R0,31	R1,13	R0,62
Built-in Oven	R11 661 175	R120 401 434	R100 949 911	R141 112 184	R238 173 625	R198 011 353	(R19 451 522)	R0,19	R2,76	R1,19
Cooking Hob	R9 292 201	R31 510 116	R27 703 578	R37 152 218	R64 884 178	R55 435 537	(R3 806 538)	R0,52	R2,26	R1,14
Hotplates	R17 357 796	R66 868 287	R61 626 000	R83 002 882	R145 211 358	R123 834 476	(R5 242 287)	R1,69	R0,96	R1,09
Refrigerators	R190 542 389	R719 826 802	R676 595 739	R945 435 878	R1 550 840 343	R1 282 000 205	(R43 231 063)	R0,47	R1,96	R1,06
Chest Freezers	R15 054 877	R109 197 723	R99 887 155	R117 637 957	R247 324 426	R229 573 624	(R9 310 568)	R0,29	R1,93	R1,09
Automatic Washers	R17 909 572	R177 695 046	R119 941 096	R274 819 549	R316 171 257	R161 292 803	(R57 753 950)	R0,24	R3,56	R1,48
Tumble Driers	R22 440 540	R106 208 308	R154 240 286	R128 874 082	R348 904 284	R374 270 488	R48 031 977	R0,22	R1,65	R0,69
Televisions	R100 711 200	R2 855 632 507	R445 653 774	R3 191 336 507	R3 021 336 001	R275 653 269	(R2 409 978 733)	R0,57	R10,26	R6,41
TOTALS	R431 125 707	R4 333 538 649	R1 922 947 873	R5 105 606 444	R6 393 268 200	R3 210 609 630	(R2 410 590 776)	R0,41	R4,47	R2,25
As a % of Total Cost	4,1%	41,2%	18,3%	48,5%	60,7%	30,5%	-22,9%	--	--	--

Table Ten: Projected Total Domestic Value Added and Import Values Arising from Electrification of Urban Black Areas Over Five Years

Table 10b: Best Case: 2 000 000 Newly Electrified Homes over Five Years (400 000 Per Year)

	0	1	2	3	4	5	6	7	8	9
Product	Projected Total Unit Sales	Projected Total Economic Cost	Avg. Percentage Imports	Total Imports of Final Products (C.I.F. Value)	Total Ex-factory Sales of Domestic Final Products	Total Domestic Value Added: Final Product	Total Inputs Required for Domestic Production	Total Imported Inputs Required	Total Domestic Inputs Required	Total Domestic Value Added: Domestic Inputs
EFS Stoves	850 939	R1 182 354 452	8,0%	R51 744 177	R1 130 610 275	R114 603 771	R258 593 123	R129 296 562	R102 849 538	R190 859 356
Built-in Oven	287 931	R548 158 673	8,0%	R25 376 696	R522 781 978	R48 224 368	R266 476 920	R133 238 460	R33 806 773	R75 468 650
Cooking Hob	254 216	R138 893 792	8,0%	R6 297 878	R132 595 914	R10 973 576	R49 600 564	R24 800 282	R9 876 218	R19 949 961
Hotplates	3 095 049	R290 849 797	10,0%	R26 234 254	R264 615 543	R83 532 895	R161 004 447	R80 502 223	R37 883 399	R16 668 696
Refrigerators	5 249 013	R6 916 595 677	12,7%	R524 219 729	R6 392 375 948	R627 816 495	R2 459 664 623	R1 229 832 312	R576 215 139	R944 304 810
Chest Freezers	439 746	R388 384 437	3,3%	R8 442 966	R379 941 471	R48 682 819	R188 346 645	R94 173 322	R31 125 081	R51 236 672
Automatic Washers	600 237	R817 480 835	23,5%	R123 100 994	R694 379 841	R56 878 236	R405 041 980	R202 520 990	R49 983 904	R95 141 776
Tumble Driers	8 806 740	R6 343 072 903	6,1%	R228 869 986	R6 114 202 917	R512 168 286	R1 691 707 369	R845 853 684	R550 968 914	R1 045 288 911
Televisions	10 388 972	R10 007 826 199	10,0%	R794 756 343	R9 213 069 856	R635 805 075	R13 044 176 914	R6 522 088 457	R443 791 942	R419 249 866
TOTALS	--	R26 633 616 766	--	R1 789 043 024	R24 844 573 741	R2 138 685 520	R18 524 612 584	R9 262 306 292	R1 836 500 909	R2 858 168 698
As a % of Market Total		100,0%	--	6,7%	93,3%	8,0%	69,6%	34,8%	6,9%	10,7%

	10	11 (7 +10)	12 (5 + 9)	13 (3 + 11)	14	15 (12 - 13 + 14)	16 (12 - 11)	17 (10/9)	18 (7/5)	19 (11/12)
	Import Content of Total Domestic Inputs for Domestic Production	Total Import Content of Domestic Production	Total Domestic Value Added	Total Imports (Final and Parts)	Total Final Product Imports Saved	Net Total Benefit (Cost) Overall	Domestic VA Less Production Import Content	Forex Used/ Domestic VA: Components	Forex Used/ Domestic VA: Final Product	Forex Used/ Domestic VA: Overall
EFS Stoves	R59 652 732	R188 949 293	R305 463 127	R240 693 471	R595 058 039	R659 827 695	R116 513 833	R0,31	R1,13	R0,62
Built-in Oven	R14 288 333	R147 526 793	R123 693 018	R172 903 489	R291 832 000	R242 621 529	(R23 833 775)	R0,19	R2,76	R1,19
Cooking Hob	R10 372 224	R35 172 506	R30 923 537	R41 470 384	R72 425 602	R61 878 755	(R4 248 969)	R0,52	R2,26	R1,14
Hotplates	R28 223 132	R108 725 356	R100 201 591	R134 959 610	R236 108 286	R201 350 267	(R8 523 765)	R1,69	R0,96	R1,09
Refrigerators	R442 739 632	R1 672 571 944	R1 572 121 304	R2 196 791 673	R3 603 494 675	R2 978 824 306	(R100 450 639)	R0,47	R1,96	R1,06
Chest Freezers	R15 059 751	R109 233 073	R99 919 491	R117 676 039	R247 404 491	R229 647 943	(R9 313 582)	R0,29	R1,93	R1,09
Automatic Washers	R22 699 587	R225 220 577	R152 020 011	R348 321 571	R400 733 023	R204 431 464	(R73 200 566)	R0,24	R3,56	R1,48
Tumble Driers	R226 595 666	R1 072 449 350	R1 557 457 197	R1 301 319 336	R3 523 096 997	R3 779 234 858	R485 007 847	R0,22	R1,65	R0,69
Televisions	R238 426 903	R6 760 515 360	R1 055 054 941	R7 555 271 704	R7 152 807 091	R652 590 329	(R5 705 460 419)	R0,57	R10,26	R6,41
TOTALS	R1 058 057 960	R10 320 364 252	R4 996 854 218	R12 109 407 277	R16 122 960 204	R9 010 407 145	(R5 323 510 035)	R0,37	R4,33	R2,07
As a % of Market	4,0%	38,7%	18,8%	45,5%	60,5%	33,8%	-20,0%	--	--	--

Table Eleven: Counterfactual: Projected Total Domestic Value Added and Import Values Arising from Electrification of Urban Black Areas Over Five Years at 1989-1992 Rate (90 015 Households per year)

	0	1	2	3	4	5	6	7	8	9
Product	Projected Total Unit Sales	Projected Total Economic Cost	Avg. Percentage Imports	Total Imports of Final Products (C.I.F. Value)	Total Ex-factory Sales of Domestic Final Products	Total Domestic Value Added: Final Product	Total Inputs Required for Domestic Production	Total Imported Inputs Required	Total Domestic Inputs Required	Total Domestic Value Added: Domestic Inputs
EFS Stoves	624 927	R868 318 036	8,0%	R38 000 789	R830 317 246	R84 164 711	R189 910 117	R94 955 059	R75 532 433	R140 166 615
Built-in Oven	227 150	R432 444 167	8,0%	R20 019 758	R412 424 409	R38 044 361	R210 224 512	R105 112 256	R26 670 274	R59 537 464
Cooking Hob	223 825	R122 289 476	8,0%	R5 544 987	R116 744 489	R9 661 719	R43 670 972	R21 835 486	R8 695 548	R17 565 006
Hotplates	1 750 844	R164 531 338	10,0%	R14 840 502	R149 690 836	R47 253 872	R91 078 891	R45 539 446	R21 430 327	R9 429 344
Refrigerators	1 874 594	R2 470 142 906	12,7%	R187 216 039	R2 282 926 868	R224 213 838	R878 426 816	R439 213 408	R205 785 303	R337 242 183
Chest Freezers	439 575	R388 234 152	3,3%	R8 439 699	R379 794 453	R48 663 981	R188 273 764	R94 136 882	R31 113 037	R51 216 846
Automatic Washers	453 973	R618 279 143	23,5%	R93 104 051	R525 175 092	R43 018 289	R306 342 360	R153 171 180	R37 803 951	R71 957 865
Tumble Driers	509 803	R367 186 674	6,1%	R13 248 785	R353 937 889	R29 648 306	R97 929 255	R48 964 627	R31 894 390	R60 509 498
Televisions	3 692 837	R3 557 356 120	10,0%	R282 502 042	R3 274 854 077	R226 001 634	R4 636 649 523	R2 318 324 761	R157 749 141	R149 025 477
TOTALS	--	R8 988 782 011	--	R662 916 652	R8 325 865 359	R750 670 712	R6 642 506 211	R3 321 253 105	R596 674 404	R896 650 299
As a % of Total Cost		100,0%	--	7,4%	92,6%	8,4%	73,9%	36,9%	6,6%	10,0%

	10	11 (7 +10)	12 (5 + 9)	13 (3 + 11)	14	15 (12 - 13 + 14)	16 (12 - 11)	17 (10/9)	18 (7/5)	19 (11/12)
	Import Content of Total Domestic Inputs for Domestic Production	Total Import Content of Domestic Production	Total Domestic Value Added	Total Imports (Final and Parts)	Total Final Product Imports Saved	Net Total Benefit (Cost) Overall	Domestic VA Less Production Import Content	Forex Used/ Domestic VA: Components	Forex Used/ Domestic VA: Final Product	Forex Used/ Domestic VA: Overall
EFS Stoves	R43 808 811	R138 763 870	R224 331 326	R176 764 659	R437 009 077	R484 575 744	R85 567 456	R0,31	R1,13	R0,62
Built-in Oven	R11 272 113	R116 384 369	R97 581 826	R136 404 127	R230 227 217	R191 404 916	(R18 802 543)	R0,19	R2,76	R1,19
Cooking Hob	R9 132 257	R30 967 743	R27 226 725	R36 512 730	R63 767 349	R54 481 344	(R3 741 018)	R0,52	R2,26	R1,14
Hotplates	R15 965 594	R61 505 039	R56 683 216	R76 345 541	R133 564 515	R113 902 190	(R4 821 824)	R1,69	R0,96	R1,09
Refrigerators	R158 116 827	R597 330 235	R561 456 021	R784 546 274	R1 286 926 000	R1 063 835 747	(R35 874 214)	R0,47	R1,96	R1,06
Chest Freezers	R15 053 923	R109 190 805	R99 880 827	R117 630 504	R247 308 758	R229 559 081	(R9 309 978)	R0,29	R1,93	R1,09
Automatic Washers	R17 168 208	R170 339 388	R114 976 154	R263 443 439	R303 083 399	R154 616 114	(R55 363 234)	R0,24	R3,56	R1,48
Tumble Driers	R13 117 130	R62 081 757	R90 157 805	R75 330 542	R203 944 411	R218 771 674	R28 076 048	R0,22	R1,65	R0,69
Televisions	R84 750 613	R2 403 075 374	R375 027 111	R2 685 577 417	R2 542 518 382	R231 968 077	(R2 028 048 263)	R0,57	R10,26	R6,41
TOTALS	R368 385 476	R3 689 638 581	R1 647 321 012	R4 352 555 233	R5 448 349 108	R2 743 114 887	(R2 042 317 570)	R0,41	R4,42	R2,24
As a % of Total Cost	4,1%	41,0%	18,3%	48,4%	60,6%	30,5%	-22,7%	--	--	--

Table Twelve: Part One: Summary of Projected Additional Domestic Value Added and CIF Import Values Arising from Electrification of Urban Black Areas Over Five Years

	0	1	2	3	4	5	6	7	8	9
	Additional Electrified Households	Total Electrified UB Households	Total Economic Cost	Total Imports of Final Products (C.I.F. Value)	Total Ex-factory Sales of Domestic Final Products	Total Domestic Value Added: Final Product	Total Inputs Required for Domestic Production	Total Imported Inputs Required	Total Domestic Inputs Required	Total Domestic Value Added: Domestic Inputs
If 1991/2 Values Unchanged	450 075	1 514 955	R8 988 782 011	R662 916 652	R8 325 865 359	R750 670 712	R6 642 506 211	R3 321 253 105	R596 674 404	R896 650 299
Worst Case Scenario	650 000	1 714 880	R10 530 928 444	R772 067 794	R9 758 860 650	R872 258 934	R7 804 825 885	R3 902 412 942	R699 876 212	R1 050 688 939
Additional	199 925	199 925	R1 542 146 433	R109 151 142	R1 432 995 291	R121 588 222	R1 162 319 674	R581 159 837	R103 201 809	R154 038 640
% of 1991/2 Counterfactual	44,4%	13,2%	17,2%	16,5%	17,2%	16,2%	17,5%	17,5%	17,3%	17,2%
Best Case Scenario	2 000 000	3 064 880	R26 633 616 766	R1 789 043 024	R24 844 573 741	R2 138 685 520	R18 524 612 584	R9 262 306 292	R1 836 500 909	R2 858 168 698
Additional	1 549 925	1 549 925	R17 644 834 755	R1 126 126 372	R16 518 708 383	R1 388 014 808	R11 882 106 374	R5 941 053 187	R1 239 826 505	R1 961 518 398
% of 1991/2 Counterfactual	344,4%	102,3%	196,3%	169,9%	198,4%	184,9%	178,9%	178,9%	207,8%	218,8%
	10	11 (7 + 10)	12 (5 + 9)	13 (3 + 11)	14	15 (12 - 13 + 14)	16 (12 - 11)	17 (10/9)	18 (7/5)	19 (11/12)
	Import Content of Total Domestic Inputs for Domestic Production	Total Import Content of Domestic Production	Total Domestic Value Added	Total Imports (Final and Parts)	Total Final Product Imports Saved	Net Total Benefit (Cost) Overall	Domestic VA Less Production Import Content	Forex Used/ Domestic VA: Components	Forex Used/ Domestic VA: Final Product	Forex Used/ Domestic VA: Overall
If 1991/2 Values Unchanged	R368 385 476	R3 689 638 581	R1 647 321 012	R4 352 555 233	R5 448 349 108	R2 743 114 887	(R2 042 317 570)	R0,41	R4,42	R2,24
Worst Case Scenario	R431 125 707	R4 333 538 649	R1 922 947 873	R5 105 606 444	R6 393 268 200	R3 210 609 630	(R2 410 590 776)	R0,41	R4,47	R2,25
Additional	R62 740 231	R643 900 068	R275 626 862	R753 051 210	R944 919 092	R467 494 743	(R368 273 207)	--	--	--
% of 1991/2 Counterfactual	17,0%	17,5%	16,7%	17,3%	17,3%	17,0%	18,0%	--	--	--
Best Case Scenario	R1 058 057 960	R10 320 364 252	R4 996 854 218	R12 109 407 277	R16 122 960 204	R9 010 407 145	(R5 323 510 035)	R0,37	R4,33	R2,07
Additional	R689 672 484	R6 630 725 671	R3 349 533 206	R7 756 852 044	R10 674 611 095	R6 267 292 258	(R3 281 192 465)	--	--	--
% of 1991/2 Counterfactual	187,2%	179,7%	203,3%	178,2%	195,9%	228,5%	160,7%	--	--	--

Table Twelve: Part Two: Projected Total Domestic Value Added and Import Values Arising from Electrification of Urban Black Areas Over Five Years: By Product

Best Case: 2 000 000 Newly Electrified Homes over Five Years (200 000 Per Year)

	1	3	4	5	6	7	8	9
Product	Projected Economic Cost	Total Imports of Final Products (C.I.F. Value)	Total Ex-factory Sales of Domestic Final Products	Total Domestic Value Added: Final Product	Total Inputs Required for Domestic Production	Total Imported Inputs Required	Total Domestic Inputs Required	Domestic Value Added: Domestic Inputs
EFS Stoves	R1 182 354 452	R51 744 177	R1 130 610 275	R114 603 771	R258 593 123	R129 296 562	R102 849 538	R190 859 356
% of Column Total	4,4%	2,9%	4,6%	5,4%	1,4%	1,4%	5,6%	6,7%
Counterfactual	R868 318 036	R38 000 789	R830 317 246	R84 164 711	R189 910 117	R94 955 059	R75 532 433	R140 166 615
Difference	R314 036 416	R13 743 388	R300 293 028	R30 439 059	R68 683 006	R34 341 503	R27 317 105	R50 692 741
Built-in Ovens	R548 158 673	R25 376 696	R522 781 978	R48 224 368	R266 476 920	R133 238 460	R33 806 773	R75 468 650
% of Column Total	2,1%	1,4%	2,1%	2,3%	1,4%	1,4%	1,8%	2,6%
Counterfactual	R432 444 167	R20 019 758	R412 424 409	R38 044 361	R210 224 512	R105 112 256	R26 670 274	R59 537 464
Difference	R115 714 506	R5 356 938	R110 357 568	R10 180 007	R56 252 408	R28 126 204	R7 136 499	R15 931 186
Cooking Hobs	R138 893 792	R6 297 878	R132 595 914	R10 973 576	R49 600 564	R24 800 282	R9 876 218	R19 949 961
% of Column Total	0,5%	0,4%	0,5%	0,5%	0,3%	0,3%	0,5%	0,7%
Counterfactual	R122 289 476	R5 544 987	R116 744 489	R9 661 719	R43 670 972	R21 835 486	R8 695 548	R17 565 006
Difference	R16 604 316	R752 892	R15 851 425	R1 311 857	R5 929 591	R2 964 796	R1 180 671	R2 384 955
Hotplates	R290 849 797	R26 234 254	R264 615 543	R83 532 895	R161 004 447	R80 502 223	R37 883 399	R16 668 696
% of Column Total	1,1%	1,5%	1,1%	3,9%	0,9%	0,9%	2,1%	0,6%
Counterfactual	R164 531 338	R14 840 502	R149 690 836	R47 253 872	R91 078 891	R45 539 446	R21 430 327	R9 429 344
Difference	R126 318 459	R11 393 752	R114 924 707	R36 279 024	R69 925 556	R34 962 778	R16 453 072	R7 239 352
Refrigerators	R6 916 595 677	R524 219 729	R6 392 375 948	R627 816 495	R2 459 664 623	R1 229 832 312	R576 215 139	R944 304 810
% of Column Total	26,0%	29,3%	25,7%	29,4%	13,3%	13,3%	31,4%	33,0%
Counterfactual	R2 470 142 906	R187 216 039	R2 282 926 868	R224 213 838	R878 426 816	R439 213 408	R205 785 303	R337 242 183
Difference	R4 446 452 770	R337 003 690	R4 109 449 080	R403 602 657	R1 581 237 807	R790 618 903	R370 429 836	R607 062 626
Chest Freezers	R388 384 437	R8 442 966	R379 941 471	R48 682 819	R188 346 645	R94 173 322	R31 125 081	R51 236 672
% of Column Total	1,5%	0,5%	1,5%	2,3%	1,0%	1,0%	1,7%	1,8%
Counterfactual	R388 234 152	R8 439 699	R379 794 453	R48 663 981	R188 273 764	R94 136 882	R31 113 037	R51 216 846
Difference	R150 285	R3 267	R147 018	R18 838	R72 881	R36 440	R12 044	R19 826
Automatic Washers	R817 480 835	R123 100 994	R694 379 841	R56 878 236	R405 041 980	R202 520 990	R49 983 904	R95 141 776
% of Column Total	3,1%	6,9%	2,8%	2,7%	2,2%	2,2%	2,7%	3,3%
Counterfactual	R618 279 143	R93 104 051	R525 175 092	R43 018 289	R306 342 360	R153 171 180	R37 803 951	R71 957 865
Difference	R199 201 692	R29 996 943	R169 204 749	R13 859 947	R98 699 620	R49 349 810	R12 179 953	R23 183 911
Tumble Dryers	R6 343 072 903	R228 869 986	R6 114 202 917	R512 168 286	R1 691 707 369	R845 853 684	R550 968 914	R1 045 288 911
% of Column Total	23,8%	12,8%	24,6%	23,9%	9,1%	9,1%	30,0%	36,6%
Counterfactual	R367 186 674	R13 248 785	R353 937 889	R29 648 306	R97 929 255	R48 964 627	R31 894 390	R60 509 498
Difference	R5 975 886 229	R215 621 201	R5 760 265 028	R482 519 979	R1 593 778 114	R796 889 057	R519 074 523	R984 779 413
Televisions	R10 007 826 199	R794 756 343	R9 213 069 856	R635 805 075	R13 044 176 914	R6 522 088 457	R443 791 942	R419 249 866
% of Column Total	37,6%	44,4%	R353 937 889	R29 648 306	R97 929 255	R48 964 627	R31 894 390	R60 509 498
Counterfactual	R3 557 356 120	R282 502 042	R3 274 854 077	R226 001 634	R4 636 649 523	R2 318 324 761	R157 749 141	R149 025 477
Difference	R6 450 470 080	R512 254 301	R5 938 215 779	R409 803 441	R8 407 527 392	R4 203 763 696	R286 042 802	R270 224 389
TOTAL: BEST CASE	R26 633 616 766	R1 789 043 024	R24 844 573 741	R2 138 685 520	R18 524 612 584	R9 262 306 292	R1 836 500 909	R2 858 168 698
TOTAL: COUNTERFACTUAL	R8 988 782 011	R662 916 652	R8 325 865 359	R750 670 712	R6 642 506 211	R3 321 253 105	R596 674 404	R896 650 299
DIFFERENCE	R17 644 834 755	R1 126 126 372	R16 518 708 383	R1 388 014 808	R11 882 106 374	R5 941 053 187	R1 239 826 505	R1 961 518 398

Product	10 Import Content of Total Domestic Inputs for Domestic Production	11 (7 +10) Total Import Content of Domestic Production	12 (5 + 9) Total Domestic Value Added	13 (3 + 11) Total Imports (Final and Parts)	14 Total Final Product Imports Saved	15 (12 - 13 + 14) Net Total Benefit (Cost) Overall	16 (12 - 11) Domestic VA Less Production Import Content
EFS Stoves	R59 652 732	R188 949 293	R305 463 127	R240 693 471	R595 058 039	R659 827 695	R116 513 833
% of Column Total	5,6%	1,8%	6,1%	2,0%	3,7%	7,3%	-2,2%
Counterfactual	R43 808 811	R138 763 870	R224 331 326	R176 764 659	R437 009 077	R484 575 744	R85 567 456
Difference	R15 843 921	R50 185 424	R81 131 801	R63 928 812	R158 048 962	R175 251 951	R30 946 377
Built-in Ovens	R14 288 333	R147 526 793	R123 693 018	R172 903 489	R291 832 000	R242 621 529	(R23 833 775)
% of Column Total	1,4%	1,4%	2,5%	1,4%	1,8%	2,7%	0,4%
Counterfactual	R11 272 113	R116 384 369	R97 581 826	R136 404 127	R230 227 217	R191 404 916	(R18 802 543)
Difference	R3 016 221	R31 142 424	R26 111 192	R36 499 362	R61 604 782	R51 216 612	(R5 031 232)
Cooking Hobs	R10 372 224	R35 172 506	R30 923 537	R41 470 384	R72 425 602	R61 878 755	(R4 248 969)
% of Column Total	1,0%	0,3%	0,6%	0,3%	0,4%	0,7%	0,1%
Counterfactual	R9 132 257	R30 967 743	R27 226 725	R36 512 730	R63 767 349	R54 481 344	(R3 741 018)
Difference	R1 239 967	R4 204 763	R3 696 812	R4 957 654	R8 658 253	R7 397 411	(R507 951)
Hotplates	R28 223 132	R108 725 356	R100 201 591	R134 959 610	R236 108 286	R201 350 267	(R8 523 765)
% of Column Total	2,7%	1,1%	2,0%	1,1%	1,5%	2,2%	0,2%
Counterfactual	R15 965 594	R61 505 039	R56 683 216	R76 345 541	R133 564 515	R113 902 190	(R4 821 824)
Difference	R12 257 539	R47 220 316	R43 518 375	R58 614 069	R102 543 771	R87 448 077	(R3 701 941)
Refrigerators	R442 739 632	R1 672 571 944	R1 572 121 304	R2 196 791 673	R3 603 494 675	R2 978 824 306	(R100 450 639)
% of Column Total	41,8%	16,2%	31,5%	18,1%	22,4%	33,1%	1,9%
Counterfactual	R158 116 827	R597 330 235	R561 456 021	R784 546 274	R1 286 926 000	R1 063 835 747	(R35 874 214)
Difference	R284 622 805	R1 075 241 708	R1 010 665 283	R1 412 245 399	R2 316 568 675	R1 914 988 559	(R64 576 425)
Chest Freezers	R15 059 751	R109 233 073	R99 919 491	R117 676 039	R247 404 491	R229 647 943	(R9 313 582)
% of Column Total	1,4%	1,1%	2,0%	1,0%	1,5%	2,5%	0,2%
Counterfactual	R15 053 923	R109 190 805	R99 880 827	R117 630 504	R247 308 758	R229 559 081	(R9 309 978)
Difference	R5 827	R42 268	R38 664	R45 535	R95 733	R88 862	(R3 604)
Automatic Washers	R22 699 587	R225 220 577	R152 020 011	R348 321 571	R400 733 023	R204 431 464	(R73 200 566)
% of Column Total	2,1%	2,2%	3,0%	2,9%	2,5%	2,3%	1,4%
Counterfactual	R17 168 208	R170 339 388	R114 976 154	R263 443 439	R303 083 399	R154 616 114	(R55 363 234)
Difference	R5 531 379	R54 881 189	R37 043 857	R84 878 132	R97 649 624	R49 815 350	(R17 837 331)
Tumble Dryers	R226 595 666	R1 072 449 350	R1 557 457 197	R1 301 319 336	R3 523 096 997	R3 779 234 858	R485 007 847
% of Column Total	21,4%	10,4%	31,2%	10,7%	21,9%	41,9%	-9,1%
Counterfactual	R13 117 130	R62 081 757	R90 157 805	R75 330 542	R203 944 411	R218 771 674	R28 076 048
Difference	R213 478 536	R1 010 367 593	R1 467 299 392	R1 225 988 794	R3 319 152 586	R3 560 463 184	R456 931 799
Televisions	R238 426 903	R6 760 515 360	R1 055 054 941	R7 555 271 704	R7 152 807 091	R652 590 329	(R5 705 460 419)
% of Column Total	22,5%	65,5%	21,1%	62,4%	44,4%	7,2%	107,2%
Counterfactual	R84 750 613	R2 403 075 374	R375 027 111	R2 685 577 417	R2 542 518 382	R231 968 077	(R2 028 048 263)
Difference	R153 676 290	R4 357 439 986	R680 027 830	R4 869 694 287	R4 610 288 709	R420 622 252	(R3 677 412 156)
TOTAL: BEST CASE	R1 058 057 960	R10 320 364 252	R4 996 854 218	R12 109 407 277	R16 122 960 204	R9 010 407 145	(R5 323 510 035)
TOTAL: COUNTERFACTUAL	R368 385 476	R3 689 638 581	R1 647 321 012	R4 352 555 233	R5 448 349 108	R2 743 114 887	(R2 042 317 570)
DIFFERENCE	R689 672 484	R6 630 725 671	R3 349 533 206	R7 756 852 044	R10 674 611 095	R6 267 292 258	(R3 281 192 465)

a) Analysis

- The net cost to the economy of electrification over a five-year period, will be substantial. Again, the main culprit is televisions, although refrigerators also share the blame.
- The total import bill arising from electrification's impact on sales of imported HEDs and components is approximately R5,1bn in the worst case and R12,1bn in the best case. This is to be compared to the 1989-91 counterfactual figure of R4,3bn. This is a very substantial amount and may be much higher if local production is unable to maintain its share of the local market in any upswing.
- In both scenarios local production will cost a substantial amount, due mainly to the high import content of local products such as refrigerators and televisions. As we have seen, forex requirements for direct imports account for only about 1/5 of the total projected import bill, whilst indirect imports for local manufacture represent 4/5.
- Compared to the 1989-91 counterfactual figure of R663m, direct imports under the worst case scenario will cost R772m and under the best case nearly R1,8bn over five years.
- Imports of components, on the other hand, could cost from R3,9bn to R9,3bn over the period. The net cost of television production alone could cost from R5,5bn to R6,5bn.
- Total value added over the period could range from R1,9bn to R4,9bn.
- There will be an estimated R10,5bn to R26,6bn in sales of locally-produced HEDs over the five years, compared to the counterfactual of R8,9bn. The value of additional sales due to electrification thus ranges from R4,3bn to R20,4bn over five years.
- After taking domestic value added into account, this leaves a net cost to the economy of R2,4bn to R5,3bn over five years. The net foreign exchange requirements of local production alone will be between R1,8bn and R3,9bn. The additional cost of electrification adds from R1-4bn to the forex cost of local production.
- The single largest element in the net forex requirements of both scenarios is imports of parts for the domestic manufacture of television sets. This could amount to between R2,4bn and R5,7bn over five years.
- Table 12 summarises this data, in aggregate and for each product.

C. Assessment

1. Gross Costs and Benefits of Electrification

It is evident that the South African economy will have to pay a great cost for both the importation and production of HEDs domestically. Gross foreign exchange requirements for the HEDs studied here could range from R5bn to R12bn over five years of electrification. Thus, in the best case scenario, local value in total HED sales over five years may be as high as R24bn. The additional local value generated by electrification could range from R275m to R3,3bn; additional imported value from R753m to R7,7bn. *Unfortunately,*

R275m to R3,3bn; additional imported value from R753m to R7,7bn. *Unfortunately, therefore, the primary beneficiaries of electrification in the HED industry may be outside South Africa.*

If imports saved are taken into account, however, local production is less 'costly' in aggregate than full importation, even in the case of televisions. Nevertheless, it should be borne in mind that *the calculation of net benefit used in the preceding charts does not take into account the elasticity of demand for HEDs or the impact of reduced prices on sales of other goods.* Thus, a net cost figure could be either higher or lower depending on the increase in the rate of HED uptake due to falling product prices, or the impact on domestic value added and forex usage of increased sales of other consumer goods. In other words, the increase in net cost to the economy of, say, full importation of televisions may be more than balanced out by other factors, or may be worsened by increased unit imports. Exports, which are only significant for refrigerators (see Chapter Three), further complicate the situation.

It is also evident that electrification will have a major impact on the fortunes of the HED industry. Large increases in domestic sales values can be expected. The impact of the electrification process on the industry's broader fortunes will depend to a great extent on the dynamics of local production and external trade in HEDs in the event of an electrification-induced upswing. As discussed above, a tendency exists for imports to rise very rapidly in upturns, and for local production volumes to lag, followed by a weak tendency towards increased exports (possibly in order to unload excess stock). *It is absolutely essential from a domestic manufacturing and value added and foreign exchange perspective, therefore, that the electrification process be made as transparent as possible, so that manufacturers can justify and plan for a gearing up of manufacturing capacity for any upsurge in demand.* This must involve both evident commitment on the part of government, plenty of advance notice of its intentions, and policies designed to encourage local supply. Otherwise, manufacturers will be reluctant to invest, and bottlenecks will hamper effective utilisation of existing capacity.

2. Domestic Supply — An Efficient Use of Resources?

Gross forex usage and domestic value added are only half the story, however. We must also ask whether the resources used to produce HEDs domestically could be put to better use. In fact this question is very difficult to answer, as not all alternatives are known and the transfer of resources from one use to another is itself costly. Here I will only provide an indication of the cost to the domestic economy of producing HEDs locally, so that subsequent research may compare other potential uses.

What is critical from an economic perspective is the relationship between domestic value added and the import content of domestic production, not just the total import bill. For example, foreign exchange savings could be effected by transferring resources used in the production of specific HEDs to other sectors which could perhaps use them more efficiently. The same goes for increased domestic value added. This is true of all domestically-produced intermediate inputs, labour, capital, and foreign exchange.

Table 10 shows the ratio of forex used to value added in local production of selected products. In the case of stoves and tumble-dryers, forex/value added ratios are less than

Projected Foreign Exchange Costs of Electrification Programme Compared to Counterfactual with Full Importation of All Appliances and Counterfactual with Full Television Imports

	1	2	3	4	5	6	7
	Total Forex Cost With Domestic Production	Total Forex cost With Full Importation	Difference	% Increase in Forex Cost	Total Forex Cost With Full TV Imports	Difference	% Increase in Forex Cost
If 1991/2 Values Unchanged	R4 352 555 233	R6 111 265 760	R1 758 710 527	40,41%	R4 491 998 241	R139 443 008	3,20%
Worst Case Scenario	R5 105 606 444	R7 165 335 995	R2 059 729 551	40,34%	R5 271 309 938	R165 703 494	3,25%
Best Case Scenario	R12 109 407 277	R17 912 003 228	R5 802 595 951	47,92%	R12 501 699 008	R392 291 731	3,24%

Notes:

1. Column 1 represents the total foreign exchange cost of additional imports of parts and final products needed to supply additional demand resulting from electrification of either 450 075 (at present rates) 650 000 (worst case), or 2 000 000 (best case) households over five years.
2. Column 2 represents the same foreign exchange cost calculated assuming imported final products supply all the additional demand arising from electrification (see other charts for details of import levels).
3. Column 3 gives the difference between these two figures.
4. Column 4 expresses this difference as a percentage of Column 1.
5. Columns 5, 6 and 7 impart the same information, but in this case the comparison is between the present pattern of importation and full importation of televisions only.

1:1; although ratios for final product manufacture are higher, those for intermediate input manufacture are lower. In the case of all other products, however, the ratio is higher. Clearly, from this perspective, the rationale for domestic supply must be examined more carefully, even if macroeconomic figures suggest small net forex usage or even a positive contribution.

A further consideration arises, however, when we realise that in cases of significant nominal rates of protection, domestic value added is inflated relative to what it would be if products traded at world prices. It is thus necessary to disentangle the impact of protection on domestic value added from the macroeconomic projections presented here.

To do this two concepts will be employed. The following section presents estimates of the Effective Rates of Protection (ERP) and Domestic Resource Costs (DRC) of five South African HED products.

3. Effective Rates of Protection and Domestic Resource Costs[1]

a) Definitions and Applications

(1) Effective Rate of Protection

'Effective rate of protection' is a measure of the extent to which tariffs applied to a product enhance domestic *value added*, as opposed to the sale price of the final product. ERP seeks to account for the fact that imported components reduce the amount of domestic value added (or 'local content') reflected in a product's price. If all components were locally manufactured (including capital equipment), *aggregate* domestic value added would be equal to selling price, as everyone's domestic inputs would be someone else's domestic output. Import content thus introduces a difference between sale price and domestic value added.

The variables used to calculate ERP are the *CIF values of imported products and components* (including depreciation of imported capital goods), and the *duties levied on them*. This achieves ERP's purpose of correcting for the fact that protection of the final product artificially inflates local value added by allowing domestic sale prices to rise above world prices. 'Actual' domestic value added (i.e. less any amount above that given by the world price) is thus the CIF import value less the CIF values of imported components. In cases of positive protection, this will be less than the value added identified through empirical investigation.

ERP is expressed as:

$$ERP = \frac{t - t^1}{S - M}$$

Where t = tariffs on final product, t^1 = tariffs on import content, and S — M = domestic value added, defined as the CIF import price of the final product less the CIF prices of imported components.

ERP thus expresses the value of *net* duties payable as a percentage of 'actual' domestic value added. This gives the percentage by which 'actual' domestic value added may be increased by protection, in theory at least. Net duties payable is the difference between the value of the duties on the final product and those on the imported content. Where rates of duty on final products and imported components are equal, they cancel each other out and by definition ERP equals nominal tariff. But where duties on the final product and imported components differ, the ERP may be higher or lower than the nominal rate.

In calculating ERP it is vital to take into account *all* duties paid on imported content, including the portion of unit depreciation charged to imported capital goods. In practice this is a very significant factor influencing ERP, since overheads are a significant proportion of cost and capital goods generally carry only a surcharge in South Africa. Interviewees were generally very vague about or did not know the proportion of manufacturing capital stock, by value, which was imported. Most information pointed to a roughly 50-50% ratio, however, and this has been used as a guide. Subsequent research and discussion may be able to clarify this significant point. It is worth noting that imported content in overheads is only part of the story; the size of unit overheads due to small production volumes also plays an important role.

(2) ERP of Selected South African HEDs

The ERP data presented in the chart below tells us the following:

- Although in most cases tariff rates on final products and imported components are equal, those on imported capital equipment are much lower, and have the effect of raising ERP significantly, to an average of 55-60%. This could be reduced considerably by reducing the proportion of overheads in local production costs, however. As we will see in Chapter Five, this is a major problem for local producers.
- In the case of EFS stoves and hotplates, nominal duty is 45% but ERP is 57% and 60%, respectively. Cooking hobs and ovens are also heavily protected in this respect.
- Tariffs on imported parts are lower than for the final product in the case of refrigerators, raising ERP to nearly 58% . ERP on chest freezers is close to 56%.
- At 21 - 25%, ERP on washing machines and tumble-dryers is lower than for most white goods, due to the small mass of domestic value added and large proportion of imported inputs.
- At 571%, the ERP for televisions is almost six times the nominal rate due to the large proportion of imported components and the very low mass of domestic value added. When considered in the light of the heavy net macroeconomic cost of imported television components, this raises serious questions about the economic rationale of continued television production in South Africa.

(3) Domestic Resource Cost

'Domestic resource cost' is a measure of the domestic resources which must be used to save one unit of foreign exchange through import substitution. Like ERP, DRC is an attempt to assess the 'real' significance of domestic value added.

Domestic Resource Cost: Selected HEDs

	4	5	6	7
Product	DRC Per US$ Saved	Nominal Rate of Protection	Effective Rate of Protection	ERP as % of Nominal
EFS Stove	R5,35	45%	57,3%	127,4%
Hotplate	R5,45	45%	60,2%	133,8%
Eye-level Oven	R5,30	45%	55,9%	124,1%
Cooking Hob	R5,43	45%	59,8%	132,8%
Small Refrigerator	R5,37	40%	57,8%	144,5%
Chest Freezer	R5,28	40%	55,3%	138,2%
Automatic Washer	R4,27	25%	25,7%	102,8%
Twin Tub Washer	R4,20	25%	23,5%	94,1%
Tumble Dryer	R4,14	20%	21,8%	109,2%
Television	R22,82	86%	571,1%	662,9%

Notes:

1. Underlying data based on DAMSA, 1991, and interview sources.
2. For basis of calculations, see Main ERP/DRC Table.

Effective Rates of Protection And Domestic Resource Costs for Selected Household Electrical Durables, Per Unit

Notes:
1. All figures are at ex-factory or C.I.F. prices.
2. ERP is calculated as Net Tarrifs/Domestic Value Added, expressed as a % (see World Bank, 1976).
3. DRC is calculated as e(1 + ERP), where e = the current exchange rate (ibid.).
4. The exchange rate used is $US1 = R3,40.
5. Data used for calculations is based on DAMSA, 1991, C&E tables, and interview sources.

	1	2	3
Electric Freestanding Stove	Average Values in US Dollars	Average Tariff Rate in %	Average Tariff US Dollars
Import Value CIF	$223,56	45%	$100,60
Imported Parts	$9,94	45%	$4,47
Depreciation of Imported Equipment	$38,64	5%	$1,93
Indirect Imports	$22,41	30%	$6,72
Total Materials Imports	$70,99	--	$13,13
Domestic Value Added	$152,57	--	--
Net Tariffs	--	--	$87,48
ERP	57,3%		
DRC	R5,35		

	1	2	3
Hotplate	Average Values in US Dollars	Average Tariff Rate in %	Average Tariff US Dollars
Import Value CIF	$24,93	45%	$11,22
Imported Parts	$4,50	45%	$2,03
Depreciation of Imported Equipment	$4,00	5%	$,20
Indirect Imports	$2,98	30%	$,89
Total Materials Imports	$11,48	--	$3,12
Domestic Value Added	$13,45	--	--
Net Tariffs	--	--	$8,10
ERP	60,2%		
DRC	R5,45		

	1	2	3
Eye-Level Oven	Average Values in US Dollars	Average Tariff Rate in %	Average Tariff US Dollars
Import Value CIF	$324,02	45%	$145,81
Imported Parts	$110,40	45%	$49,68
Depreciation of Imported Equipment	$37,54	5%	$1,88
Indirect Imports	$15,86	30%	$4,76
Total Materials Imports	$163,80	--	$56,32
Domestic Value Added	$160,22	--	--
Net Tariffs	--	--	$89,49
ERP	55,9%		
DRC	R5,30		

	1	2	3
Cooking Hob	Average Values in US Dollars	Average Tariff Rate in %	Average Tariff US Dollars
Import Value CIF	$91,08	45%	$40,99
Imported Parts	$18,77	45%	$8,45
Depreciation of Imported Equipment	$12,42	5%	$,62
Indirect Imports	$13,04	30%	$3,91
Total Materials Imports	$44,23	--	$12,98
Domestic Value Added	$46,85	--	--
Net Tariffs	--	--	$28,01
ERP	59,8%		
DRC	R5,43		

	1	2	3
Small Refrigerator	Average Values in US Dollars	Average Tariff Rate in %	Average Tariff US Dollars
Import Value CIF	$231,29	40%	$92,52
Imported Parts	$41,95	25%	$10,49
Depreciation of Imported Equipment	$36,98	5%	$1,85
Indirect Imports	$28,42	30%	$8,53
Total Materials Imports	$107,35	--	$20,86
Domestic Value Added	$123,94	--	--
Net Tariffs	--		$71,65
ERP	57,8%		
DRC	R5,37		

	1	2	3
Automatic Washing Machine	Average Values in US Dollars	Average Tariff Rate in %	Average Tariff US Dollars
Import Value CIF	$256,68	25%	$64,17
Imported Parts	$97,70	30%	$29,31
Depreciation of Imported Equipment	$32,02	5%	$1,60
Indirect Imports	$14,54	30%	$4,36
Total Materials Imports	$144,26	--	$35,27
Domestic Value Added	$112,42	--	--
Net Tariffs	--	--	$28,90
ERP	25,7%		
DRC	R4,27		

	1	2	3
Tumble Dryer	Average Values in US Dollars	Average Tariff Rate in %	Average Tariff US Dollars
Import Value CIF	$125,30	20%	$25,06
Imported Parts	$10,49	25%	$2,62
Depreciation of Imported Equipment	$19,60	5%	$,98
Indirect Imports	$8,06	30%	$2,42
Total Materials Imports	$38,14	--	$6,02
Domestic Value Added	$87,16	--	--
Net Tariffs	--	--	$19,04
ERP	21,8%		
DRC	R4,14		

	1	2	3
Chest Freezer	Average Values in US Dollars	Average Tariff Rate in %	Average Tariff US Dollars
Import Value CIF	$171,12	40%	$68,45
Imported Parts	$41,95	25%	$10,49
Depreciation of Imported Equipment	$21,53	5%	$1,08
Indirect Imports	$10,42	30%	$3,12
Total Materials Imports	$73,90	--	$14,69
Domestic Value Added	$97,22	--	--
Net Tariffs	--		$53,76
ERP	55,3%		
DRC	R5,28		

	1	2	3
Twin-Tub Washing Machine	Average Values in US Dollars	Average Tariff Rate in %	Average Tariff US Dollars
Import Value CIF	$179,40	25%	$44,85
Imported Parts	$91,08	30%	$27,32
Depreciation of Imported Equipment	$24,56	5%	$1,23
Indirect Imports	$20,00	30%	$6,00
Total Materials Imports	$135,65	--	$34,55
Domestic Value Added	$43,75	--	--
Net Tariffs	--	--	$10,30
ERP	23,5%		
DRC	R4,20		

	1	2	3
Television	Average Values in US Dollars	Average Tariff Rate in %	Average Tariff US Dollars
Import Value CIF	$225,00	86%	$193,84
Imported Parts	$191,20	39%	$74,57
Depreciation of Imported Equipment	$13,03	5%	$,65
Indirect Imports	N/A	N/A	N/A
Total Materials Imports	$204,23	--	$75,22
Domestic Value Added	$20,77	--	--
Net Tariffs	--	--	$118,62
ERP	571,1%		
DRC	R22,82		

In the case of televisions the Tariff Rate on imported parts is derived from an average duty payable on net foreign exchange usage per set as presented in BTT Report 3099 and in the text.

The DRC per unit of foreign exchange saved is derived by dividing net foreign exchange savings achieved by local supply by 'apparent' domestic value added. *Net foreign exchange savings* is defined as the difference between the CIF value of the imported product less the CIF values of any imported components used in local production. In this case, however, *domestic value added* is defined as the difference between actual sale price and the 'cost of sales', mainly materials and depreciation. This is ascertained empirically[1] and includes value added in all stages of manufacture and sale. Note that this method reverses ERP's effect of eliminating the portion of value added made possible only by protected domestic prices of final products. Because protection allows domestic producers to charge higher than world prices for their products, use of domestic resources reflected in the price of a domestically-produced unit are higher than they would be if the latter were sold at world prices. They are, in fact, higher by the percentage given by ERP, by definition of the latter. DRC can thus be defined as:

$$\frac{VA}{S - M}$$

Where VA = apparent domestic value added, S = the CIF price of an imported product, and M = the CIF prices of imported components used in domestic production, or by

$$e = (1 + ERP)$$

Where e = the official exchange rate.

The latter method of deriving DRC can be seen more clearly by recognising that since the concept measures the amount of domestic resources which must be used to save one unit of foreign exchange, the additional resources used under protection are given by the effective rate of protection of domestic value added.

Thus understood, it can be seen that the main use of DRC is to compare it to the official exchange rate, e. If DRC is higher than e, then theoretically it is costing the economy more domestic resources to substitute for the product than to import it, and *vice versa*.

(4) Limitations of DRC

The principal limitation of DRC is that, like the concept of comparative advantage to which it is related,[1] it is static and limited to direct production:

- Firstly, it fails to take into account the dynamic process of 'creating' comparative advantage through improvement — learning by doing. DRC is effectively a snapshot of a process, and only multiple snaps and other forms of analysis can tell where the process is headed.
- Secondly, it fails to take into account positive (and negative) externalities associated with domestic production, and thus misses technological learning, firm experience, the convenience of local supply, and so on. These can be particularly important in the case of HEDs, since locally-based producers may be in a better position to respond quickly and effectively to market changes and to provide customer service — as retailer interviewees consistently argued.
- A final problem arises when attempting to compare products whose attributes may be differentiated (partially) by local taste. For example, on balance South African EFS

- A final problem arises when attempting to compare products whose attributes may be differentiated (partially) by local taste. For example, on balance South African EFS stoves cost 36,4% more per US dollar of foreign exchange saved than it would cost to import them duty-free. A stove is not a stove, however, since South African customers have design preferences which foreign producers do not fulfil because of the small size of the South African market, but local producers do. The price premium for local stoves is therefore not necessarily 'bad' from the economic perspective of want satisfaction.

(5) DRC of Selected South African HEDs

The DRC analysis in the chart above tells us the following:

- At +/- R5, the DRC of white goods production is significantly higher than the exchange rate used for comparison of US$1 = R3,40. Theoretically, this implies that the opportunity cost of local production is significantly higher than importation, even though the figures presented in the analyses above may appear reasonable in aggregate.
- The DRC of washing machines and tumble dryers is less than that for other white goods. This is due to their lower ERP.
- The DRC of television is extremely high — over R22. This suggests that the opportunity cost of television production far outweighs any benefit in terms of imports saved. The resources used to save these imports could clearly be used for other purposes.

Several implications flow from these considerations:

- *Resources currently used to produce certain items, particularly televisions, could possibly be better used to produce other products.* To say this for certain, however, one must also consider externalities associated with local production. As Chapter Five will argue, however, for the most part these externalities seem to be meagre, except in the sense that local suppliers are somewhat more responsive to local needs than imports and that employment is generated by local manufacture. Dynamic technological and learning externalities are not clearly evident.
- Equalising tariff rates on final products and imported parts could significantly alter DRC in some cases, particularly refrigeration products and televisions. In the case of cooking products, excessive DRC is due to high rates of recovery of foreign-denominated overhead costs.
- In the case of cooking products, high nominal tariffs on both imports and imported parts balance each other out. These seem to serve no useful purpose, as manufacturers are penalised by the latter, although the proportion of imported parts in cooking products is relatively low.

D. Summary and Conclusion

The main points to be drawn from this chapter are as follows:

1. Electrification of urban black households will have a major impact on the market for HEDs, raising market values, domestic value added, and import values significantly,

1. Electrification of urban black households will have a major impact on the market for HEDs, raising market values, domestic value added, and import values significantly, depending on the rate of electrification. In most cases, however, it should not exceed the capacities of the domestic industry to supply. The primary issue to be addressed is not necessarily investment in new capacity as such, but how to avoid the tendency towards excessive imports during boom periods. Policies to encourage local market share are needed if potentially devastating import bills are to be avoided. Such policies can start with transparency and consistency in electrification and housing policy, which will encourage long-term investment in local supply by HED manufacturers. Policy must also address the possibility of bottlenecks in the supply of variable inputs such as materials, components, and labour. In addition, the significant boost provided by electrification may present a vital opportunity to encourage investment in more advanced manufacturing techniques (see Chapter Five).
2. The foreign exchange cost of the electrification process will be considerable, although this is moderated by increased domestic value added and other externalities such as new investment. The most significant component of forex cost will be imported intermediate inputs, particularly for televisions.
3. Effective rates of protection are high for most HEDs, and are grossly inflated for televisions. Domestic resource costs are also higher than desirable, although this may be mitigated by externalities. Again, in the case of televisions DRC is extremely high.
4. In general, if the current tariff situation remains unchanged local value will constitute approximately 18% of additional retail sales, whilst imported value will constitute the remaining 72%. This may be altered significantly, however, if tariffs are reduced significantly, or if certain products are given over to import supply.

Appendix One: Average Values Used for Calculation of Electrification Data

	Ex-factory Value	Import Value CIF	Imported Materials	Depreciation of Imported Equipment	Indirect Imports	Total Materials Imports	Domestic Materials	Depreciation of Domestic Equipment	Total Domestic Materials	Domestic Value Added: Final Product	Domestic Value Added: Materials	Total Domestic Value Added
EFS Stove												
1994 Rands	R1 444,20	R760,10	R33,78	R131,38	R76,20	R241,36	R681,28	R131,38	R812,65	R146,39	R243,80	R390,19
1994 US$	$424,76	$223,56	$9,94	$38,64	$22,41	$70,99	$200,38	$38,64	$239,02	$43,06	$71,70	$114,76
Hotplate												
1994 Rands	R95,00	R84,76	R15,30	R13,60	R10,13	R39,03	R17,51	R13,60	R19,99	R29,99	R5,98	R35,97
1994 US$	$29,12	$24,93	$4,50	$4,00	$2,98	$11,48	$5,15	$4,00	$5,88	$8,82	$1,76	$10,58
Built-in Oven												
1994 Rands	R1 973,53	R1 101,68	R375,36	R127,62	R53,94	R556,92	R822,04	R127,62	R949,66	R182,05	R284,90	R466,95
1994 US$	$580,45	$324,02	$110,40	$37,54	$15,86	$163,80	$241,78	$37,54	$279,31	$53,54	$83,79	$137,34
Cooking Hob												
1994 Rands	R566,94	R309,67	R63,81	R42,23	R44,35	R150,39	R242,11	R42,23	R284,34	R46,92	R85,30	R132,22
1994 US$	$166,75	$91,08	$18,77	$12,42	$13,04	$44,23	$71,21	$12,42	$83,63	$13,80	$25,09	$38,89
Small Refrigerator												
1994 Rands	R1 394,99	R786,38	R142,64	R125,75	R96,62	R365,00	R561,16	R125,75	R686,91	R137,01	R206,07	R343,08
1994 US$	$410,29	$231,29	$41,95	$36,98	$28,42	$107,35	$165,05	$36,98	$202,03	$40,30	$60,61	$100,91
Chest Freezer												
1994 Rands	R893,49	R581,81	R148,27	R73,20	R35,42	R256,88	R328,44	R73,20	R401,64	R114,48	R120,49	R234,98
1994 US$	$262,79	$171,12	$43,61	$21,53	$10,42	$75,55	$96,60	$21,53	$118,13	$33,67	$35,44	$69,11
Automatic Washer												
1994 Rands	R1 512,21	R872,71	R332,19	R108,85	R49,43	R490,48	R581,81	R108,85	R690,66	R123,87	R207,20	R331,07
1994 US$	$444,77	$256,68	$97,70	$32,02	$14,54	$144,26	$171,12	$32,02	$203,14	$36,43	$60,94	$97,37
Twin Tub Washer												
1994 Rands	R1 003,88	R609,96	R309,67	R83,52	R68,02	R461,20	R264,63	R83,52	R348,15	R90,09	R104,44	R194,53
1994 US$	$295,26	$179,40	$91,08	$24,56	$20,00	$135,65	$77,83	$24,56	$102,40	$26,50	$30,72	$57,21
Tumble Dryer												
1994 Rands	R739,37	R426,03	R35,66	R66,63	R27,40	R129,69	R354,72	R66,63	R421,34	R61,93	R126,40	R188,34
1994 US$	$217,46	$125,30	$10,49	$19,60	$8,06	$38,14	$104,33	$19,60	$123,92	$18,22	$37,18	$55,39
Television												
1994 Rands	R985,35	R765,00	R650,08	R47,46	R25,50	R723,04	R102,00	R47,46	R149,46	R68,00	R44,84	R112,84
1994 US$	$289,81	$225,00	$191,20	$13,96	$7,50	$212,66	$30,00	R13,96	R43,96	$20,00	$13,19	$33,19

Chapter Five: The Manufacture of Household Electrical Durables in South Africa

A. Introduction

This chapter examines the HED manufacturing industry in South Africa. It seeks to provide an overview of several of the key issues facing local HED manufacturers. The primary goal is to determine the global competitiveness of the South African HED industry, its ability to meet basic needs effectively, and its potential to contribute to growth in the broader economy.

The South African HED industry is not presently competitive internationally. Its products are generally costlier and of lesser quality than those available from producers in the Far East, Europe, and North America. Its products and manufacturing processes, in particular, are outdated. This is not to say that great strides towards improved performance have not been made in some firms; rather, where progress has been made, it has been recent, incomplete, and hardware-oriented. The industry also suffers from high materials and components costs and a generally unfavourable industrial context. Perhaps most importantly, it has not yet begun to adopt the crucial organisational and work practice changes which have been shown to improve manufacturing performance significantly in firms globally. Nevertheless, certain parts of the industry might make the transition to competitiveness against imports, at least, given the right inducements and external conditions.

1. Case Studies

Case study material will be used to illustrate the points raised in the discussion. Case studies were conducted at two South African consumer electronics manufacturers, one small appliance manufacturer, and one white goods and consumer electronics manufacturer. Comparative case studies of one white goods plant in New Zealand and two white goods and one small appliance plant in Australia were also conducted in early 1993.[1]

Case studies were conducted by means of plant visits, interviews, and documentary research. The quality of data obtained varies widely. Where possible, I have presented key indices of manufacturing performance. Where such information has not been available, I have concentrated on the qualitative picture.

As mentioned in the Introduction, a universal condition of access to the firms visited was strict confidentiality. I have accordingly given the firms false names, and list interviewees by title only. Generally interviews were conducted with the managing director, financial

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[1] The small number of firms visited locally is partly a function of the small size of the industry, but is also due to its general reticence to discuss manufacturing issues, discussed in the Introduction. Nevertheless, other sources tended to corroborate the information gathered at the firms visited.

director, marketing director or manager, engineering director and/or factory manager, and where possible with shopfloor workers.

Table A-1: Case Study Firms

FIRM	PRODUCTS	FACTORY LOCATIONS
Company A	white goods, consumer electronics	Natal, Eastern Cape
Company B	consumer electronics, small apps.	Western Cape, Tvl.
Company C	consumer electronics	Western Cape, Tvl.
Company D	small appliances	Transvaal
Company NZ1	white goods	New Zealand, Queensland
Company AUS1	small appliances	New South Wales urban
Company AUS2	white goods	New South Wales rural

B. Television Manufacturing in South Africa

This section covers the television manufacturing industry in South Africa. It does not cover the audio portion of the consumer electronics industry, as it is clear that all local production of such products is being phased out by local manufacturers because of the impossibility of competing with imports. The concluding Chapter will return briefly to this issue to discuss the implications for tariff structures of a withdrawal from this area.

At the time of writing, major developments were underway in the South African television manufacturing industry, in the form of a proposed joint venture between the South Korean *chaebol* Daiwoo and Anglo-American to manufacture television tubes. Lack of access to information has prevented incorporation of this important but late-breaking development into this report. Nevertheless, the conclusion to this section will comment on the basis of available information.

1. TVI Vital Signs

a) Structural Characteristics

(1) Market Structure And Barriers To Entry

South African TV production was approximately 568 000 units in 1992. Sales of television now account for approximately 42% of the consumer electronics market by value. Of total 1992 sales, 258 000 were MTV[2], and 282 000 CTV. The wholesale CTV market was worth R410m in that year, whilst the wholesale MTV market was worth R78m (BMI, 1992). South African firms supplied approximately 90% of MTVs and 80% of CTVs. The

[2] MTV: monochrome television. CTV: colour television.

overhang in the TV market — production in excess of supply — was approximately 100 000 units in 1992.[3]

The South African TVI is still dominated by the four firms who originally founded it: Phillips SA, Tek Corporation, National Panasonic (NATPAN), and Tedelex Electronics. Of the four, Tek and NATPAN seem more healthy; there have been persistent rumours about Phillips' withdrawal from television production, whilst Tedelex has already closed its Atlantis factory.

Until recently these four firms shared the market roughly equally. In recent years several other firms have entered the CTV and MTV markets at the low end. Firms such as Triad, Etron, and Rowa (the last with Taiwanese backing) have had a major impact on the four established producers, and have reduced each of the Big Four's share of the market by and estimated 20-25% (Factory Manager, Company B). Coupled with this has been the emergence of several 'screwdriver' assemblers of imported SKD kits in the so-called homelands, who took advantage of loopholes in trade legislation to undercut all of the established producers. It is felt in the rest of the industry that considerable grey-market imports occur, as well, further undermining the previously privileged position of the Big Four.

The television industry is thus not over-concentrated, and seems to be subject to considerable competition. On the other hand, given the relatively small size of the South African market, one might also argue that there are too many producers for any one to achieve reasonable scale economies — an issue to which we will return.

(2) Linkages To Other Sectors

The TVI is linked mainly to the electronic and electrical components sector on the input side, and to the retail furniture trade on the other. At present nearly 80% of the bill of materials of a CTV is taken up by imported components, so that the bulk of the value added chain lies outside South Africa (BTI 1989; interview sources). As discussed in Chapters Two and Four, the local components sector is particularly weak and uncompetitive, and is generally unable to supply key value-adding components, such as tubes and quality tuners. In addition, most major television manufacturers are in fact assemblers of ready-made kits imported from technology partners overseas, which include many items produced in South Africa, including electronic components. The lifting of tariffs on a range of key components in February 1993 was accordingly regarded as a major boon by many interviewees — although some claimed to prefer local sourcing for logistical reasons.

For these reasons, the value added contribution of the television 'filiere' is notably small, as we have seen in Chapter Four.

The only other significant inputs to the TVI are cabinets, plastic parts, and packaging. The former two are either manufactured in-house or by specialised subcontractors — often former employees, as in the cases of Companies A and B. Company C represents the other case of in-house manufacture of cabinets by skilled artisans. Plastic components are generally subcontracted, as the production process is radically different and unsuitable for proximity to electronic assembly operations.

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[3] For further information on the TV market and imports and exports, see Chapters Two and Three.

The TVI sells nearly all of its output to Southern African retailers, large and small. There are a variety of types of retailers handling these and other HEDs, either on cash, credit, or hire terms. The latter is an increasingly popular form of television usage in South Africa, and hire firms such as Teljoy now purchase a large proportion of the industry's output. Conditions governing credit sales in the retail furniture industry seem to play less of a role in the fortunes of the TVI than in the case of white goods; for this reason major cash discount chains are regarded as a key area of growth by the industry (Mohamed, 1992).

(3) Ownership and Managerial Structures and Competitiveness

The big four television manufacturing firms are part of larger industrial groupings: TEK Electronics under Tek Corporation and SANKORP; National Panasonic under Barlows Consumer Electric Products Group; and Tedelex under the Malbak umbrella. Only Phillips is foreign-owned. Recent entrants have generally been independents, and in one case was set up by former employees of the major firms. Rowa TV in Midrand is alone in its direct backing by Taiwanese capital.

In two cases the manufacturing operation visited was a separate business entity to that of the head office, and at least notionally competed with other suppliers for the business of the parent. In another case the factory was managed directly from head office and the factory manager sat on the board of directors. Internal management structures at factory level seemed relatively standard, and consisted principally of manufacturing engineering staff and line supervisors.

The role of ownership and managerial structures in determining the competitiveness of the TVI seems crucial. Head office-level interviewees generally expressed satisfaction with the support given by parent companies, although all admitted to feeling pressurised by a strict quarterly time horizon. Factory level management, however, often expressed reservations about the relationship between finance, marketing, and manufacturing operations. In one company in particular, where I was fortunate enough to spend some time alone with junior engineering staff, the view was expressed that the timing and substance of marketing directives ran very much counter to the logic and requirements of manufacturing efficiency. It was felt that a more interactive approach to product development and marketing was required to avoid frantic year-end attempts to engineer a production process to accommodate marketing's new product, developed at head office in Johannesburg and simply announced in a memorandum.

This tendency towards functional disjuncture within the firms was clearly recognised by the factory manager of Company A. He was new to Company A, having worked previously for a technology partner, and felt that the factory should be permitted to operate independently, to explore opportunities for profitable use of excess capacity and export without direct reference to the head office. This view will be discussed further in the conclusion to this section.

(4) Links To Government

No links to state research institutions were identified, and supply to state institutions has never been a major aspect of the TVI's business. The principal relationship between the

TVI and government is through the BTT, and the constant process of adapting and amending the trade regulations. This will be discussed in detail below.

b) Competitiveness

(1) Cost Structures

Local television prices are generally markedly higher that those in other economies. For example, a branded 20"(51cm) colour television (CTV) can be had in the US or UK for as little as R600; this is R100 less than the *ex-factory price* of a comparable South African set. Similarly, imported sets are much cheaper than comparable South African products: the FOB price of a typical unbranded Far Eastern 20" CTV is about R450; a comparable set produced by Company C's Western Cape plant can be profitably produced for no less than R700 — a 56% premium. Brand premium, it will be recalled, is about 25%, so South African firms cannot hope to compete with such imports on the strength of customer loyalty alone.

A detailed cost comparison of a hypothetical South African 20" colour set is presented in Table B-1.[4] It shows three scenarios comparing prices of South African sets with an average price for a set manufactured in Singapore. It can be seen that under current regulations, the South African set is just able to compete with the import, which currently attracts a 96% nominal tariff. Note that Company C's set is more expensive than the import (albeit the latter is a more sophisticated product). Note also that the amount of *ad valorem* excise duty paid by South African manufacturers is considerable — R180 — R225.

Table B-1: Cost Comparison, 20" Colour Television

UNDER CURRENT POLICY					
COMPANY		**A**	**B**	**C**	**Singapore**
Labour		R20,94	R25,00	R25,00	R19,20
Overheads		R90,48	R120,00	R150,00	R38,40
of which:	Variable	R8,37	--	--	--
	Fixed	R82,11	--	--	--
Materials		R602,31	R755,00	R800,00	R520,00
of which:	Local	R96,00	R205,00	R250,00	--
	Imported	R506,00	R550,00	R550,00	--
Factory Profit		R22,54	R27,00	R24,00	--
Ex-factory/FOB		R736,27	R927,00	R999,00	R577,60
Royalty		R22,00	R22,00	R22,00	--
Excise/Customs Duties		R225,00	R180,00	R209,00	R554,50
Wholesale profit		R398,60	R338,00	R300,00	R326,55
Price to the Trade		R1,381,87	R1,400,00	R1,530,00	R1,458,65
Retail Price		R1,796,43	R1,820,00	R1,989,00	R1,896,24

[4] Based on data supplied by interview sources: Financial Director and Managing Director, Company A; Engineering Director and Factory Manager, Company B; Factory Manager, Company C.

BY 1996, UNDER POLICY FAVOURED BY INDUSTRY					
COMPANY		**A**	**B**	**C**	**Singapore**
Labour		R20,94	R25,00	R25,00	R19,20
Overheads		R90,48	R120,00	R150,00	R38,40
of which:	Variable	R8,37	--	--	--
	Fixed	R82,11	--	--	--
Materials		R602,31	R755,00	R800,00	R520,00
of which:	Local	R96,00	R205,00	R250,00	--
	Imported	R506,00	R550,00	R550,00	--
Factory Profit		R22,54	R27,00	R24,00	
Ex-factory/FOB		R713,73	R900,00	R999,00	R577,60
Royalty		R22,00	R22,00	R22,00	--
Excise/Customs Duties		R0,00	R0,00	R0,00	R173,28
Wholesale profit		R398,60	R338,00	R300,00	R263,86
Price to the Trade		R1,134,33	R1,260,00	R1,321,00	R1,014,74
Retail Price		R1,474,63	R1,638,00	R1,717,30	R1,319,16
BY 1996, UNDER PRESENT POLICY					
COMPANY		**A**	**B**	**C**	**Singapore**
Labour		R20,94	R25,00	R25,00	R19,20
Overheads		R90,48	R120,00	R150,00	R38,40
of which:	Variable	R8,37	--	--	--
	Fixed	R82,11	--	--	--
Materials		R602,31	R755,00	R800,00	R520,00
of which:	Local	R96,00	R205,00	R250,00	--
	Imported	R506,00	R550,00	R550,00	--
Factory Profit		R22,54	R27,00	R24,00	
Ex-factory/FOB		R713,73	R900,00	R999,00	R577,60
Royalty		R22,00	R22,00	R22,00	--
Excise/Customs Duties		R142,75	R180,00	R199,80	R323,46
Wholesale profit		R398,60	R338,00	R300,00	R281,24
Price to the Trade		R1,277,08	R1,440,00	R1,520,80	R1,182,29
Retail Price		R1,660,20	R1,872,00	R1,977,04	R1,536,98

Source: own calculations based on interview sources

The next scenario lists the policy favoured by many in the TVI, in which all excise duties were abolished and a flat *ad valorem* duty of 30% placed on imports. This would still render all three manufacturers overpriced relative to the import. Only a substantial reduction in wholesale profit could make the sets competitive. Note that an equalisation of overhead and labour costs would be insufficient to make Companies B and C competitive with the import.

The final scenario alters the variables to simulate the 1996 tariff structure under the current SAP. The three South African firms are all badly overpriced relative to the import. Company A, again, could potentially survive if it were to reduce overhead costs and/or its wholesale margin.

The figures and formulas used in these calculations were current and accurate at the time of writing. Clearly, then, South African sets are not competitive with comparable imports. Of course, the situation may differ for other models, such as monochrome television (MTV), but more than likely for the worse, rather than better. No interviewees felt that the South African TVI had any products which could compete successfully against Far Eastern sets.

(2) Productivity

One reason for this price discrepancy is the relative productivity of South African versus overseas plants. None of the South African plants visited was able to estimate its capital productivity, and instead used various measures of labour productivity as a basic yardstick. In general, most plants visited were only beginning to take performance measures, or did not want to divulge them.

Table B-2 lists selected performance measures gathered from three firms. In general, the physical labour productivity for Companies A and B is comparable to that of the Singaporean plant to which several interviewees referred, but according to interview sources, South African wages were approximately 20% higher. Unfortunately other performance indicators were not available for this plant, but it is clear from the lead times that South African plants are not as speedy as their Far Eastern competitors. Long lead times in South Africa were generally attributed to the time required to import kits from overseas.

Table B-2: TV Productivity and Performance Measures

Company	A	B	C	Singapore
Hours per set	2,38	2,6	4	2,1
Value (annual)	R212 765	R309 528	R277 778	--
K/L ratio (R's per employee)	R95 744	R16 666	R4 444	--
Output/capital ratio	3,6	18,5	62,5	--
Ratio direct/indirect	4,38	1,6	5,2	--
Workers/supervisor	32	--	--	--
Stock turns	4	4	4	--
Average Batch Size	1 000	1 000	5 000	--
Average WIP	500 units	R22m	R750 000	--
Key changeover/setup times	2 hours	1 day	3 days	1 day
% factory space utilised	80%	50%	50%	--
Lead times	6 months	5 months	3-4 months	1 week
Throughput times	10 days	5 days	2 weeks	--
Value added ratio	3,75%	--	--	--
Defects as % of output	15%	20%	15%	--
Plant size (units)	75 000	75 000	70 000	140 000
Capacity utilisation	25%	30%	30%	--

Source: Interview sources

Most interviewees felt that productivity had been improving slowly, although Company C felt the opposite and cited labour problems as a major obstacle. However, on examination it

became clear that measured productivity improvements were in part due to a very rapid decline in the size of the workforce: in Company A, for example, the manufacturing workforce had fallen from 560 in April 1992 to 470 in early 1993, and was expected to fall by another 100-150 in the next few months.

(3) Scale of Production

As mentioned above, one of the TVI's main arguments for continued protection concerns its inability to achieve economies of scale relative to foreign plants. This issue must be considered carefully, for if it is groundless, then the basis for protection is considerably weakened.

This is an issue which has vexed the industry and BTI for years. On the one hand, the industry argues that television production is subject to significant economies of scale and that restricted entry is a suitable policy for South African conditions. On the other hand, the BTT and prospective importers and entrants have seen the big four firms as rent-seekers and consistently argued for a freer market.

Production runs in local plants average 70 000 units per line p.a. compared to 140 00 p.a. in foreign plants. The minimum efficient annual output for one line using locally available technology would be 100 000 units (interview sources). Given the fact that each local plant has two or more lines, the combined output of seven firms producing at optimal levels would be far in excess of the local market. From Table B-1, it can be seen that at present the best South African plant experiences per-unit overhead costs roughly 2,3 times those of Singaporean firms. That this disjuncture is not greater than it is, however, is an indication that manufacture at lower volumes *is* possible.

Nevertheless, it is clear that South African firms do suffer a disadvantage in overhead costs versus foreign producers. It will also be noticed, however, that in none of the scenarios would overheads identical to those of their competitors solve the TVI's problem of price disadvantage. *Excessive materials costs* are at least as important, and are not subject to alteration through increased throughput because of proprietary technology restrictions which govern component pricing.

Local manufacturers import components in kit form from overseas technology licensors, who charge an average premium of 15% compared to their internal transfer prices to their own plants. It is not possible to purchase directly from component manufacturers, as South African firms are tied to the use of proprietary integrated circuits (ICs) which must be purchased as part of the basic kit. In this respect even availability of significantly cheaper locally-produced components would not rectify the situation. To this is added the lower volumes at which South African manufacturers purchase imported components, which prevent them from receiving discounts comparable to those enjoyed by some overseas competitors.

Nor will the problem of overhead costs be solved by new investment in up-to-date production technology. The benchmark Far Eastern plants are highly automated and flexible, and require large production runs in order to cover the cost of this investment. For South African firms to follow this route, overhead costs would further *increase* unless major export outlets could be found.

Finally, the minimum industry output required to support local manufacture of the principal component, the picture tubes, is closer to 1m units p.a. — far beyond the Southern African market. In this respect, the recent Daewoo-Anglo proposal for a South African television tube plant must be regarded with scepticism — unless, of course, it was to be heavily protected.

More central to the overhead cost disadvantage facing local firms, perhaps, is the size of the wholesale profit margin: a case can be made that existing producers have compensated for limited volumes by increasing margins, in turn made possible by protection, entry restrictions and aggressive brand marketing. Table B-1 suggests that in some cases South African manufacturers enjoy wholesale profit margins 50% higher than their overseas competitors. The large and costly corporate structures which must be supported by local television pricing may also play an important role.

Seen in this light, the argument for restricted entry may turn out to be an argument for protecting excessive profit levels. In this case the test of the argument should be to allow new entrants to test the waters. If this results in a shake-out of the industry, this may be a desirable outcome.

(4) Product Quality

Product quality at retail level is not seen as a problem within the South African industry. Retail interviewees felt comfortable with South African products. The number of defects which must be resolved at *plant* level (15-20% of output), however, are unacceptably high. Company B reported 80 minutes a day spent correcting faults, but could not quantify the resulting impact on cost. All sources, however, stressed that South African televisions were less sophisticated than their overseas counterparts, and that quality might not be as consistent were this not the case. It must be remembered, too, that relatively little of a 'South African' television is actually South African — by far the greatest part of the product by value and physical volume is imported. The essential South African contribution is assembly.

(5) Product Research, Design, And Development

No company reported significant research and development (R&D) efforts. All employed industrial engineers who worked on layout, flow, value engineering, etc., but none reported any product development beyond cosmetic alterations or recombinations of existing components. In general, the combination of technology dependence and limited skills precluded any meaningful R&D. No company was able to quantify the proportion of R&D spending in turnover, or profit.

This is clearly a function of the nature of the South African TVI. Although the TVI was founded partly to encourage technological progress and skills acquisition, it was also required *by law* to conclude agreements with foreign technology licensors who, it was hoped, would impart skills to their South African partners. This has not happened; instead, as we have seen, firms are locked into the purchase of the proprietary ICs needed for brand-name models. Local firms have been unable to break away from dependence on overseas designs, and do not seem interested in doing so. Company B reported that their foreign partners simply scaled down popular models and provided the designs to their South African

partners, who had only to engineer the production layout. This was seen as a satisfactory arrangement by the South Africans.

Perhaps it is inevitable that this should be so in a global context of very rapid product changes and high R&D overheads associated therewith. As we saw in Chapter Three, the hallmark of competition in the contemporary consumer electronics industry is the ability to design and bring to the market new products on a nearly continuous basis. Competitive advantage resides primarily in this. Such capacity is simply beyond the capacity of an industry lacking the design skills, strategic orientation, and inter-firm linkages with component suppliers of the Far Eastern consumer electronics giants.

The only viable future for a television industry which lacked a strong local market and/or components sector, therefore, would be design and production of proprietary products marketed globally under an independent brand name. To achieve this, however, would require massive investments in technological capacity and production volumes sufficient to cover these costs. Given the number and nature of the established producers of televisions globally, such a path is not practical for the South African TVI.

(6) Strategic Focus

(a) Domestic Market

The strategic orientation of South African television manufacturers is shaped by the marketing and corporate orientation of their parent companies. In general, their goal is to maintain brand premium and share through product quality and cost competitiveness versus other local firms. This approach does not result in low-priced, mass-oriented products, but is oriented towards the middle to upper end of the market. Recently, however, the emergence of smaller cut-price assemblers of SKD kits has forced more established manufacturers to consider moving into this market as well.

This is not a popular option with the established firms, as it would force them to be competitive against a product which has little local content and a very low relative price. Successful manufacture of such products could only be achieved were the components to be imported in SKD form, with correspondingly less domestic value added — hence less opportunity for profit — and higher foreign exchange requirements. This would require much larger volumes to be as profitable as the present set-up. Against such a move, it is argued that maintaining brand premium through product identification and quality is the key to profit, which is based on customer loyalty and brand preferences; and that customer association of low-priced products with established brands could undermine the latter.

There is no obvious reason, however, why television *plants* — as opposed to *firms* — could not sell such products directly to cash discount chains, as is the practice of the newcomers. This would bypass the marketing and administrative costs associated with a large corporate structure. Customers of branded products would not be affected by such a strategy. This was suggested by the factory manager of Company A, who felt that such a step would increase throughput and help to spread overhead costs over a greater variety of products without compromising brand image. Only corporate attachment to the brand strategy and limited independence at the factory level stood in the way. The technological adjustments associated with multi-product *assembly* (as opposed to *fabrication*) were not regarded as insurmountable with commitment.

(b) Exports

Beyond the rhetorical level, there is little interest in television exports in most firms, for obvious reasons. Present exports are almost entirely to African countries, and mainly to expatriate or state purchasers. No company interviewed had achieved any success in television exports to any major market. Exports of related products are also seemingly not seriously considered, with the significant exception of Company A, which has recently sought export channels in Europe for a low-priced VCR which would be assembled locally out of imported Korean kits.[5]

Companies A and B, however, have had success in exporting M-Net-type decoders to European pay-TV firms. This success was based on their ability to offer flexible volumes and limited production runs, which larger Far Eastern plants would not consider. It was admitted in both cases, however, that these exports would not be at all profitable were it not for GEIS export incentives and the connections of M-Net itself.

c) Manufacturing Philosophy And Practice

(1) Factory Layout

Of the three firms visited, two permitted factory tours. In both plants it was possible to speak to the engineering director directly. Both plants had nearly identical layouts. A receiving area delivers components to a store area, which in both cases seemed fairly well-stocked. As can be seen from Table B-2, at least three month's worth of inventory was carried in both cases.

The manufacturing process begins with the assembly of the chassis (a printed circuit board with a variety of components) using sophisticated auto-insertion machinery. These machines, which were generally bought second-hand from technology partners, picked components from bins and placed them into the PCB, which was sent though a solder bath. In both plants the capacity of the auto-insertion machines was far in excess of the assembly line, but machines were kept running for production into stock because changeovers took considerable time. This resulted in trolleys full of chassis waited for assembly into the set.

The next stage was assembly of the set on a moving assembly line fed by baskets of components. Separate lines were generally used for CTV and MTV. This started with the insertion of several more components onto the chassis, followed by the tuner. The set then went through another solder bath, and was hooked up to the tube. Then came a series of tests and settings, followed by assembly into the cabinet and other external features. Then came more tests and settings, followed by a period of 'soaking' on overhead racks, in which sets were left to run a test pattern to settle components and show any faults. From there the sets were packaged and sent to shipping.

In both plants numerous defective sets were seen on racks awaiting rectification, which appeared to employ 15-20 full-time technicians in both plants. Aside from the chassis, work in progress levels were limited since sets move down the line singly.

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[5] Tellingly, exchange rate fluctuations killed this deal.

Neither plants used any cellular layouts, since the costs involved in duplicating equipment for each cell were prohibitive. Layout was strictly functional and linear, not U-shaped.

In general, the key dynamics in television assembly are (i) the speed at which assemblers can assemble, and (ii) the relationship between efficient production volumes at various stages of the manufacturing process. Optimally, plants using auto-insertion equipment should run enough lines to take up the output of the latter working at full pace. As it stands, neither plant using such equipment can sell enough output to do this. As a result, there is a significant disjuncture between the auto-insertion process and assembly.

(2) Production Scheduling

Production in both plants is for stock based on forecasts supplied by head office. Neither plant works on a just-in-time basis, except to the extent that sets go down each line singly. Ample stock of components was evident at each work station, as no kanban system is used in either plant.

Component deliveries were taken into stock, as local components suppliers were not trusted to deliver timeously. The exception was cabinets, which were supplied frequently to both plants (Plant A 's requirements in this respect were served by a former employee around the corner). Delivery of kits, of course, were in three months' batches since they were shipped from overseas.

(3) Work Organisation

In both plants, auto-insertion machines are run by trained technicians who monitor, set and 'operate' the machines. It appeared that programming and maintenance is done by the operators, except for major repairs which require imported technicians.

In the assembly line area work is organised along classical flow lines. Each worker is seated at a work-station with components available overhead, and repeat a single assigned assembly or setting task continuously. No work teams or multiple skilling methods are used, although TV Plant A claims commitment to developing a multi-skilling approach. A similar system applies to the testing areas.

Neither plant uses suggestion schemes or green areas, although both hold periodic meetings to discuss production problems, quality, and so on. Supervision is by a separate group of employees, as is final quality testing. Every set, however, is tested for performance; testing is not random or statistical.

(4) Skills, Training, and Labour Relations

Because of the assembly nature of television manufacture in South Africa, skill levels are generally low. Both plants employ unskilled workers who are trained in-house to work at a specific assembly station. Auto-insertion machines are monitored by one or more qualified technicians. Generally one qualified electrician is employed in the plant to maintain and repair equipment. Understandably, no shortages of workers were reported at either plant.

Training is generally once-off, on-the-job, and in-house. Neither plant had any specific skills or education requirements for new employees, beyond literacy and numeracy. Neither

plant could describe the average educational background of it workers. It appeared that most assembly workers picked up skills in soldering and operating test equipment, but were not required to know anything about electronics or wiring — they simply took colour-coded components and placed or soldered them into place on preassigned parts of the chassis. Ongoing training programmes are used at TV Plant A to instil a sense of quality, although the training is mainly conceptual, not practical.

Company B's factory manager claimed to have a fairly good relationship with production workers. The plant was organised by the Radio and Television Workers Association of South Africa, which appeared to be a quiet and conservative union. The plant was not organised by NUMSA and had not struck in the 1992 SEIFSA dispute.

Labour relations at Company C were also opaque, but the engineering director spoke freely of the unsuitability of his 'African' employees relative to the 'coloured' workers at Western Cape plants. (Here his younger production manager strongly disagreed with him, perhaps sensing the researcher's discomfort with the exchange). The plant was not organised by any union, although a NUMSA ballot had been held and lost by the union in 1991.

Management at neither plant regarded unions as particularly useful or important from the perspective of manufacturing performance, and generally dismissed the idea of a co-operative approach to production with a 'well, it might work overseas, but here, with these people...' attitude. In both plants, however, management expressed concern that poor labour quality and lack of skilling was a significant barrier to competitiveness, and that further training was required to overcome this. The concept of 'training' present ins such attitudes was not clearly specified — it was essentially a general catch-call for improving workers. Neither plant's management seemed to regard a labour-as-resource approach as feasible because of low skill levels.

All of the assembly workers in both plants were women, hired for their alleged 'nimbleness'. TV Plant A employed mostly African-language speakers, whilst TV Plant B employed so-called 'coloureds'. TV Plant B also employed a few white women. Auto-insertion technicians were mostly white and foreign, with the exception of TV Plant A, which had one or two so-called 'coloured' technicians. All of the management personnel contacted or met were white males.

d) Ability To Meet Basic Needs

(1) Employment

TV Plant A employed 383 workers, 320 of whom were direct, the rest indirect. TV Plant B employed 586 workers, 160 indirect and 426 direct. Both plants were at approximately 1/3 of capacity, but foresaw only a 25% increase in employment should there be a more to full capacity. A doubling of capacity would require far less than double the number of workers — approximately only 60% more.

The employment potential of the TVI can been seen in two ways. With existing technology, labour requirements would grow with output growth, although much less than proportionately to the latter. With a newer, more flexible technology, however, labour requirements would probably *fall*. Considering that between them plants A and B account

for nearly 40% of the already-overstocked South African television market, it is evident that even a doubling of that market is unlikely to have any significant impact on unemployment.

(2) Product Affordability and Appropriateness

At present South African televisions remain significantly overpriced relative to the South African market. A branded 20" CTV costs around R1 200 to R1 500, nearly an average metalworker's monthly wage. An unbranded import, however, even with duty, costs from R600 — R800. Unbranded sets could probably be profitably imported and sold for even less, if prices elsewhere are an indication — from R250 — R400. South African sets, moreover, are of generally slightly less quality and offer fewer features that many imports which could be sold for half the price.

The South African TVI's products are thus not easily affordable to the majority of South Africans. That the latter continue to buy televisions in increasing numbers, however, is an indication of the importance attached to this basic communication device. Higher television prices are undoubtedly costing the economy significantly in terms of foregone expenditure on other items, many of which perhaps could be viably produced here.

e) Other Considerations

(1) Age, Condition, and Sources of Equipment

Capital equipment in all three plants was on average 10 years old. Its quality and effectiveness was rated highly by management, but it was recognised that it was generally inferior to that available elsewhere. Auto-insertion machinery had been imported as hand-me-downs from technology partners; other equipment was readily available locally.

The pertinent issue, however, is not the status of existing equipment, but the cost of its replacement, which is generally 3-4 times the historical value. Moreover, replacement with existing equipment would not make sense, as to be competitive production technology would have to be updated to substantially different methods.

(2) Investment Plans

None of the firms visited had any plans to invest in significant additions to capacity or to upgrade their existing capacity, with the exception of TV Plant B, which was considering buying another auto-insertion machine to handle decoder exports should their contract be renewed. In every case it was felt that there was no justification for expansion in the present climate, and that any new investment would have to be based on a guarantee of future policy stability from government.

It should be noted that all three plants valued their assets in historical terms, and that replacement values were significantly higher than the figures given.

(3) Environmental and Safety Issues

No significant environmental issues specific to the TVI were identified. All plants had achieved SABS and ISO 9000 quality and safety ratings for their products. Industrial safety and health conditions appeared to be good; television manufacture is generally a clean and fairly quiet process.

f) Three Case Studies

The following case studies illustrate the points made in this section.

Company A

TV Plant A is the manufacturing arm of the consumer electronics manufacturing division of a consumer products group owned by a major financial institution. In theory, it operates independently from the rest of its division. It manufactures televisions, M-Net decoders, and a variety of similar products.

The plant produced R180m worth of goods in 1992, using R60m worth of inputs. It holds roughly 30% of the television market. In that year it produced 80 000 CTV, 55 000 MTV, 100 000 M-Net decoders for the local market, and 80 000 decoders for export. It also assembled 20 000 VCRs and a quantity of video door phones. In addition the plant produced 10 000 electricity prepayment meters under contract to another firm. 30 000 television chassis had recently been exported to Brazil on the basis of competitive *shipping* costs versus the far East. Exports of decoders — made profitable by GEIS — had helped the plant survive the slump in television sales by soaking up significant overhead costs. Such exports, however, were expected to end soon as the contract was unlikely to be renewed.

TV Plant A employs 426 production workers, 108 management, 16 engineers, and 6 quality control staff. Its investment in plant and equipment total R15m, giving a cost per job of R26 987, the highest of the three plants visited. Indeed, its facility was the largest of the three, comprising several separate factories on one large site.

The average ex-factory cost of a television from this plant was R725, making it uncompetitive versus imports. The plant operated at 50% capacity in 1992/93, producing on average 73 units per day, although television production was at only 25% capacity. Production is for stock, based on corporate forecasts, and dictated by the need to order kits ahead of time. Labour productivity is nearly comparable to Far Eastern plants — 2,38 labour hours per set — but its materials costs, which are 90% of ex-factory price, were limited by the need to buy proprietary components from its technology partner, who adds 18% to the ex-factory price of these items.

15% of output is defective, and 20 full-time fault finders are employed. Quality control is by ex-post statistical sampling. Average lead time is six months, again due to the wait period for imported kits. 2,5% of the average throughput time of 10 days is spent adding value. Average batch size of 1000 (2 — 3 000 for the auto-insertion section) is dictated by the changeover time of 2 hours. Average WIP is 500 units, and 30 days' worth of stock is kept on hand, although the goal is ten. Stock thus turns 12 times annually, making it the best of the three plants.

The equipment used in this plant is generally newer than for other plants, and 13 auto-insertion machines are used. The average age of equipment is about 10 years, and it had been obtained from technology partners.

The interesting feature of TV Plant A is its management's strategic focus. The factory manager for this plant had apparently been 'poached' from a technology partner, and had worked in a number of European plants. His approach to television manufacturing was strikingly different to the South African managers interviewed in other plants. At present his plant was doing outside contract work which accounted for 55-60% of output, selling the remainder to the parent company. His philosophy was that the plant should be considered and run as an independent actor, selling to any buyer on a competitive cost and quality basis, including the corporate owner. This approach had already borne fruit; the plant was negotiating directly with a variety of export targets independently of head office. He did not say so directly, but I sensed that there were problems in achieving this level of independence from head office. Other interviewees in the plant indeed spoke with candour of problems arising from head office insensitivity to manufacturing realities.

The factory manager's feeling was that the local television industry had over-invested in capacity in the 1970s in anticipation of a boom which never materialised, and that this had dissuaded them from making further investments which could increase manufacturing flexibility. This was seen as the only way to solve the problem of low television volumes and unstable production of decoders. To this end the factory manager had reorganised the production facility into several sub-units, each of which had its own management group and was accounted separately. This helped to identify more accurately the overhead costs per unit, which varied according to the sub-unit in question. It was hoped that this would result in the creation of 'profit centres' within the factory which could be developed into independent sub-factories manufacturing groups of related products. The key to this approach — which had already achieved success, as evinced by the variety of products produced — was to attain manufacturing flexibility so as to allow for rapid changeovers to a variety of products on the same line or cell. This would help to spread overhead cost recovery over a larger number of products, thus reducing the pressure on the television section to recover it all. This could help to reduce television costs, although the problem of high component costs would remain.

It was recognised that it might also be necessary to move into production of unbranded low-cost sets to increase volumes, although this was an unpopular and risky option for reasons discussed above. A more reasonable approach, according to the factory manager, would be to concentrate on niche marketing of middle to upper end branded products of a reasonably high quality, produced in small batches. It was realised that this approach would require significant investment in organisation development, training, and multi-skilling. Such steps have already begun, although it is too early to tell whether they would be effective. TV plant A is easily the most advanced and successful of the three plants visited, and may well be able to achieve this goal.

Company B

TV Plant B is the manufacturing arm of a major consumer electronics subsidiary of one of the country's top industrial conglomerates. It is a wholly owned subsidiary of the consumer electronics group. It specialises in the production of branded televisions and M-Net decoders.

TV Plant B produced R130m worth of televisions in 1992, 2/3 of them CTV. Average output was about 200 sets per day. This company held about 20-25% of the television market, although share has fallen in response to competition from the 'screwdriver' assemblers and grey market imports. It also produced 100 000 pay-TV decoders for export to Europe and 50 000 for the local market last year.

The plant employs 420 people, 260 of them in direct production activities. Fixed capital invested totals R7m, giving a figure for capital invested per employee of R16 666. The relatively high figure is due to large investments in two auto-insertion machines, purchased from a technology partner.

The average ex-factory price of a television from this plant is about R900. A directly comparable imported set would cost approximately R896 CIF, whilst the unbranded sets which are cutting into its market share come in at R480 — R600.

Labour productivity at the plant averages 3 sets per person per day, compared to 7-8 at comparable Far Eastern plants visited by the factory manager. 20% of physical output is defective, and there are 7 full-time fault-finders employed. Production is for stock, and the minimum batch size is 400 — 1,5 -2 day's output. Lead times are 5 months for television, due to long delays in getting imported kits, and 3 months for decoders. Manufacturing throughput time is usually 5 days. This means that actual time spent adding value to materials is 6.5% of throughput time. Stock turns 4 times per year on average.

No major changes to technique, technology, or process had been initiated in recent years, but productivity had risen due to the reduction in the number of employees; by contrast, fixed overhead per unit had risen due to reduced volumes.

The factory manager and engineering director of the plant felt that the TVI would not survive the present SAP, due to their inability to reduce costs because of high overheads, high component costs, and inability to match productivity at Far Eastern plants. They saw the best solution as a return to licensing of producers to limit participation in the market, and a 20% effective duty on imports — i.e. once duties on net forex usage were taken into account. They did not see automation as an answer because of lack of throughput.

Company C

TV Plant C is the manufacturing facility of a large multi-product consumer goods firm. It assembles televisions and some audio products, although its audio operations are consist of placement of pre-manufactured chassis into plastic cabinets designed for the local market.

The plant produced R250m worth of goods last year, with 60% of this accounted by TVs. Average daily output of TVs is presently about 416 units. Its MD estimates that it held 20-25% of the TV market until this year, when 'grey' imports and sales by 'kit' assemblers such as Triad and Giant cut its share to 12-15%, as in the case of Company B.

The plant employs 1 000 people, 780 of whom are involved in production or related activities. Total investment in plant and equipment is about R4m. Capital per employee is thus only R4 000, far below the average for manufacturing industry and a fraction of that figure for the other two firms studied. This is because the plant is essentially a highly labour-intensive assembler of imported parts and used little equipment. For example, it was the only plant visited not to use auto-insertion machinery — requiring 100 extra employees to perform this time-consuming task, adding several hours of labour per set. The plant was in fact designed to be labour intensive to suit apartheid relocation incentives.

As in the case of the two previous case studies, the average ex-factory cost of a 20" colour set at this plant is R700, but sets are sold to the trade at just under R1000 once wholesale mark-up is included. By comparison, the same set could be imported net of duties at an FOB cost of R450. The reasons for this are not hard to identify.

Whereas at a typical Far Eastern plant it takes on average 2,25 hours to produce a TV, TV Plant C takes over 4 hours. 15% of physical output is defective in one way or another, and nearly 50% of the 580 production workers in the TV section are involved in rework. Production for stock is the norm, since changeover takes nearly 3 days and the minimum batch size target is 5 000 units — half a month's output. Lead times range from 3-4 months, and material throughput times are on the order of two weeks. Given the hours needed to produce a set, this implies that only 0,05% of throughput time is spent adding value. Since input costs are on average 75% of the value of a set, this implies a significant cost in inventories. Stock presently turns 4 times per year, and the average value of work in progress is about R750 000. Company C is thus significantly less productive than its South African competitors.

Given these figures, according to the MD, the plant cannot be expected to survive beyond the next three years of the current SAP for the industry. His reasons for this are as follows. Firstly, labour productivity and quality are much worse than comparable overseas plants.[6] Absenteeism is 11%, compared to 0,5% at Far Eastern plants he has visited. Compared to local plants, too, his plant is badly inefficient. It does not use auto-insertion machinery for basic chassis preparation, which means that more than 100 extra employees are required compared to TV Plants A and B. Secondly, production at less than efficient scale, which he estimates to be closer to 30 000 units per month, raises costs by 40%. Thirdly, although locally sourced inputs are only 5% of the total, their price and quality are much worse than imported products. This has attributed to the poor state of the local component industry. (The cost-raising effect of sub-optimal scale production at some component plants was estimated at 300%.) Finally, capital equipment is on a par with overseas firms, but is ageing and unlikely to be replaced. There are potential improvements to be had from the installation of auto-insertion equipment for printed circuit boards, but the decentralisation incentives referred to above precluded using them as they would decrease employment.[7] Subsequently the capital cost has become too high to justify the investment.

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[6] One also sense that there have been tensions between management and labour recently, which may account for his emphasis on labour problems.

[7] With the same process, a doubling of output would cost R4m, and increase labour requirements by 30%.

Although some strides have been made through reducing the number of lines in the factory and increased multi-product runs, engineer exchanges with component suppliers, and in-house R&D efforts (all sets are now designed locally, at least cosmetically), the plant remains hopelessly inefficient. The MD sees no future for TV production and estimates that 10 years technological and educational catch-up efforts are needed. Investment in more efficient automated technology is not seen as an option since the local market is too small to support the number of producers (TV Plant C plant could supply the entire country with its present capacity, which is only 50% utilised), and such technology is already in use at overseas plants who already enjoy such volumes. Exports are not seen as a viable alternative since local component supply is so poor and costly. Export of assembled parts — which can be brought in at little less than the final product — is not a viable export strategy.

TV Plant C closed down towards the end of the Industrial Strategy Project.

2. The Television Industry: A Case Study in Trade and Industrial Policy Gone Wrong

a) Background

The South African television industry is unique in the HED industry in that it has been the object of almost continuous public attention since its inception, both from the government and the broader public. This has had two practical implications. Firstly, the greater availability of documentary sources, which are scarce for the white goods and small appliances branches, has made it possible to provide a much more detailed study of this branch. Secondly, it provides an opportunity to look at the practice of South African industrial policy — really trade policy — towards what has been regarded as a strategic consumer durables industry.

(1) A Strategic Industry?

As noted in the introduction, the South African television industry (henceforth TVI) has its origins in a decision by the government to begin television broadcasts in the early 1970s. Until recently the state-controlled South African Broadcasting Corporation (SABC) has been the only legal broadcaster in South Africa. From the beginning the TVI, too, has been under strict government control: it was regarded as a strategic industry. The initial conditions stipulated for the TVI were thus exacting:

- Manufacturers had to be approved by the Minister for Economic Affairs.
- Each manufacturer had to register with the Minister a technology agreement concluded with an established foreign producer. This was intended to ensure that local televisions would be of high quality, and that technology would be transferred to the South African firm.

- All receivers had to comply with safety *and* quality standards set by the SABS. In practice the quality specifications tended to inhibit low-cost sets from being manufactured by smaller firms.
- Only 61 cm monochrome and 45 to 50 or 67 cm colour sets could be manufactured (later expanded to include 31 cm portables). This limitation was introduced to achieve maximum scale economies and encourage eventual local production of picture tubes (interview sources).
- Personnel training facilities were required to be established.
- Manufacturers had to utilise locally-made components and co-operate actively with local component manufacturers to maximise local content.

One reason given for such pervasive control was the need to ensure system standardisation. The second reason, however, was perhaps a bit far-fetched: it was hoped that the TVI would serve as a training ground for technically-skilled labour for a growing domestic electronics sector, seen as strategically vital. Subsequent experience has shown that this was a vain hope: the South African TVI has remained a technology-dependent assembler of imported parts, requiring and imparting few specialist skills.

Of all government conditions imposed on the TVI, the most significant was that which limited the number of manufacturers within the Southern African Customs Union to six (later eight), 'in the interests of stability'. This intervention has had lasting effects, giving the initial participants enormous advantages. This arrangement could arguably be justified at the time by the smallness of the South African market and the need to encourage domestic investment in the industry. But it also helped to create a persistent culture and practice of 'lobbyism' in the TVI, in which considerable energy and resourcefulness has been devoted to debating, contesting, and evading government trade and fiscal regulations. The recent entry of low-price producers of SKD kits, however, has changed the situation considerably, forcing older manufacturers to reassess their traditional brand-oriented strategies.

(2) Initial Tariff Protection

As part of the government's plan, a study of tariff protection for the TVI was initiated by the Board of Trade and Industries in 1971. At that time the BTI recommended the following: (i) an *ad valorem* duty of 100% or R500 each less the FOB price on TV receivers, either assembled or unassembled — essentially blanket protection; (ii) an *ad valorem* duty of 100% or R250 each on picture tubes (with a 5% preference given to imports from the UK). This was to encourage local manufacture of tubes — obviously a measure introduced without much investigation into its feasibility; and (iii) provision for full rebate of these duties at the discretion of the Secretary for Industries.

Although the TVI was to be protected heavily, the high duty on picture tubes undermined this considerably.[8] Nevertheless, these proposals were implemented in early 1972. The BTI

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[8] Picture tubes remain the most serious obstacle to a viable TVI in South Africa. The tube typically represents over 80% of the bill of materials for a television. The bill of materials is typically 70-80% of ex-factory cost. Clearly then, inability to produce this part locally essentially precludes sufficient domestic value added to make the industry viable.

stated explicitly at the time, however, that the duties were "exceedingly high and...intended simply to prevent imports of television sets temporarily", until local manufacturers had had a chance to equip themselves. As such, they were to be "subject to review at short notice". Anticipating subsequent events, the BTI also (stipulated that "no claim could be made for any assistance for a local television industry established on the basis of these duties". This has not stopped the TVI from trying.

b) The TVI in 1984

To review the effectiveness of its policy towards the TVI, the BTI conducted a study of the industry in 1984 (BTI, 1984). This was generally highly critical of the industry. Its principal conclusions are presented in this section in order to develop an overall picture of the TVI and to provide a comparison to more recent events.

(1) Participating Firms

Table B-3: Market Breakdown, 1984

MODEL	SCREEN WIDTH	SETS SOLD	AVG. EX-FACTORY PRICE	EX-FACTORY SALES (Rm)
COLOUR				
	67 cm	70 000	R542	R37 940 000
	51 cm	50 000	R466	R23 300 000
	other	40 000	R362	R14 480 000
				R75 720 000
MONOCHROME				
	31 cm	120 000	R135	R16 200 000
	other	20 000	R200	R4 000 000
				R20 200 000
TOTALS		**300 000**	**R320**[9]	**R95 920 000**

Source: BTI, 1984

As anticipated, the local television market was overwhelmingly dominated by local products. The BTI had modified its original limitation on entry in the late 1970s to allow up to eight television manufacturing firms. Through mergers and closures, however, by 1984 the TVI had shaken out to four players: the National Panasonic Division of Barlows Manufacturing Company; SA Phillips (Pty.) Ltd.; Television and Electrical Holdings, Ltd. (Tedelex); and TEK Corporation (Pty) Ltd. Each firm held roughly 20-25% of the market.

[9] Weighted average.

(2) Market Size

Unit sales fluctuated considerably between 1974 and 1984, around a mean of 260 000. Physical production capacity, however, was estimated to be 500 000 units p.a., with an average utilisation rate of only 52%.

Table B-4: Television Receivers Sold, 1976-1984

YEAR	NUMBER	YEAR	NUMBER
1974-6	450 000	1981	293 000
1977	292 000	1982	341 000
1978	183 000	1983	295 000
1979	156 000	1984	310 000
1980	293 000	--	--

Source: South African Radio and Television Manufacturer's Association, CSS, 1984.

As noted above, this problem of over-capacity was to become a major feature of industry argument and policy development. Each manufacturer had installed the minimum technologically feasible capacity, which taken together was significantly more than the entire Southern African market. Plant capacity was determined by the capacity of core processes, such as printed-circuit board (PCB) insertion machinery, and by the number of lines installed. In practice, plant capacity has probably been understated: all three plants visited during research had ample space for extra lines, whilst those in operation only ran one shift. This results in relatively high overhead charges per unit, as we have seen.

Table B-5: Cost Breakdown

ITEM	RANDS	% of PRICE
Components and Materials:	**198**	**62%**
South African	34 (17%)	11%
Imported	164 (83%)	51%
Overhead and Duties, of which:	**26**	**8%**
— Fixed overhead costs	16	5%
— Levies and duties	10	3%
Value added, of which:	**96**	**30%**
— Labour costs	26	8%
— Factory profit	70	22%
Ex-factory price	**320**	**100%**
Plus excise duty	100	31%
Plus marketing and distribution80	25%	
Retail price	**500**	**156%**

Source: BTI, 1984

Production by current values stood at R132,8m in 1982 and R103,8m in 1983. This was significantly higher than annual average domestic sales of R96m, again reflecting a tendency to over-produce relative to the market. This yearly average was composed as shown in

Table B-5. It can be seen that the dominant market by volume and value was for CTV. Ex-factory prices fell after 1984 in current terms, but subsequently rose again to fluctuate around the R300 — R350 range. In real terms, however, ex-factory prices fell steadily.

(3) Cost Breakdown & Principal Statistics

South African televisions were significantly more expensive than imported sets in 1984. The BTI estimated that the cost of a hypothetical South African television receiver in 1984 was composed as in Table B-6.

Table B-6: Principal Statistics

ITEM	TOTAL	% OF SALES
Ex-factory Sales	R95,9m	
Total Intermediate Inputs	R59,4m	**61,9%**
Of which:		
Local Inputs	R10,2m	10,6%
Imported Inputs	R49,2m	51,3%
Value Added	R36,6m	38,2%
Of which:		
Profit	R21,0m	21,9%
Labour Remuneration	R7,8m	8,1%

Source: BTI, 1984

Note that on average imported materials comprised 83% of materials cost and 51% of ex-factory cost. Value added in the manufacturing process was less than the value these imported materials. Extrapolating from this hypothetical example to the total market of 300 000 sets in 1984, the principal statistics for the TVI were approximately as depicted in table B-6.

Of total intermediate inputs used, 'local' inputs represented 17,2%, whilst imported inputs represented 82,8%. This figure does not fully represent the cost of imported inputs, however, since the import content of 'local' inputs and depreciation charges is not taken into account. Note that on the basis of 1600 full-time employees, each job in the TVI cost the economy R30 750 in foreign exchange usage. This was balanced by R22 875 in value added per employee.

(4) Investment

Total investment in the TVI in 1984 was broken down as depicted in Table B-7.

Table B-7: Investment in the TVI, 1984

ITEM	AMOUNT	% OF TOTAL
Total Fixed Investment	**R10,7m**	**14%**
Land and Buildings	R7,4m (69%)	9,7%
Plant and Equipment	R1,9m (17,8%)	2,5
Other	R1,4m (13%)	1,8%
Working Capital	**R65,2m**	**85,7%**
Stocks	R41,2m (63%)	54%
Debtors	**R24,0m (37%)**	31,5%
Total Investment	**R75,9m**	**100%**

Source: BTI, 1984

The percentage of fixed investment in total investment, at 14%, was remarkably low compared to the manufacturing average. The proportion of plant and equipment in fixed investment, at 17,8%, was also

Table B-8: Skill Composition Of The TV Manufacturing Industry, 1984

TYPE	NUMBER	%
Skilled production workers	96	6%
Semi-skilled	448	28%
Unskilled	560	35%
Management	496	31%

Source: BTI, 1984

very low. On the other hand, the figure for working capital was high, reflecting the fact that major TVI firms were and are primarily trading companies.

From this picture the BTI drew the conclusion — as we have — that the TVI earned its profits on trade rather than on manufacture. It attributed this to limitations on market entry and high tariff protection. Indeed, the factory managers of Companies A, B, and C all argued that their role was as a supplier of product to a wholesale division whose profitability depended on maintaining brand premium. Any cost reductions were therefore passed on to the wholesale division, whose minimum prices to the trade were effectively set by the tariff rate. They pointed out that average profit attributable to factory operations is in the region of 2-3%.

(5) Employment

Together the four manufacturers employed only 1 600 persons in 1984, broken down as in Table B-8. Given the emphasis placed on the development of a skilled workforce in the industry, the total of only 96 skilled workers was a matter of significant concern.

(6) Economic Ratios

From the foregoing, various statistics can be presented (Table B-9):

- The ratio of value added to fixed capital was extremely high in comparison to the

Table B-9

Profit as a percentage of total capital employed	27,7%
Profit as a percentage of total fixed investment	196,0%
Profit as a percentage of VA[10]	57,3%
Fixed capital per employee	R6 687,50
VA per employee	R22 875,00
Output per employee	R59 937,50
VA/Fixed capital	3,42
Output/Fixed capital	8,96
VA/Intermediate inputs	0,62
Output/Intermediate inputs	1,61
VA/all inputs	0,47
Output/all inputs	1,23

[10] Value added.

manufacturing average, yet the ratio of profit to value added was similar to the manufacturing average. *This implied that profits were being earned predominantly on working capital, rather than on manufacturing as such.* This could be attributed both to the high proportion of materials cost in product cost, and the protected nature of the industry.

- The intensity of labour usage was lower than in manufacturing more generally, whilst labour productivity was higher. The use of intermediate inputs and their productivity was similar to the manufacturing average, as was multifactor productivity.

(7) Competitive Position

South African sets were from 70-90% more expensive than imported sets in 1984.

Table B-10: Price Comparison

	A	B	C	D	E	F	G	H
Colour								
67 cm	70 000	300	340	542	202	67%	242	80%
51 cm	50 000	230	260	466	206	90%	236	103%
other	40 000	200	220	362	142	71%	162	81%
Monochrome								
31 cm	120 000	72	80	135	55	64%	63	88%
other	20 000	108	120	200	88	74%	92	85%

A = South African unit sales; B = Avg. FOB cost of imported set; C = Avg. CIF cost of imported set; D = Avg. ex-factory price of local set; E = Avg. price disadvantage of local set vs. CIF import; E = Disadvantage as % of CIF; E = Avg. price disadvantage of local set vs. FOB import; E = Disadvantage as % of FOB. **Source: BTI, 1984.**

From Table B-10 it can be seen that the ex-factory cost of every South African set was in no case less than 80% higher than the FOB price of an import. CIF costs offered a little protection, but nowhere near enough to make local sets competitive without heavy protection. The weighted average FOB cost of an imported set without duties was R192. By contrast, the weighted average cost of a South African-made set was R320, giving an average price disadvantage of R128. Based on the average R320 ex-factory price, domestic value added was approximately R36,6m in 1984. However, if South African sets had been sold at the average F.O.B price of R192, value added would have been negative (-R0,8m). This implies that any 'value added' arising from local production existed only because of protection. The situation has not changed; indeed, as we have seen in Chapter Four, the effective rate of protection of South African televisions is in excess of 570%. The domestic resource cost of producing one Rand of value added in the TVI is over R20.

The reasons for lack of competitiveness on the part of the TVI in 1984 were not hard to see — and remain essentially unchanged:

- Because of low unit labour costs overseas, the cost of a fully assembled imported set is only slightly higher than that of an unassembled imported kit (duties excluded). As a result, the TVI is unable to add value without protection (see below).

- Manufacturers could not obtain components more cheaply locally given the weakness of local suppliers (see below). Until recently high duties have been payable on some essential generic components, as well, forcing local television manufacturers to purchase locally. These duties were lifted in early 1992, however.
- Although labour costs and productivity were and are comparable to overseas plants, overhead costs are high. Fixed overheads are roughly double that in foreign plants.
- Technological dependence on foreign partners, the need to retain established brand names, and inability to recover R&D costs has meant that local firms have been unable to develop locally-designed products which could liberate them from dependence on high-priced imported kits (see below).

From the perspective of local manufacturers, then, the only effective solution to lack of competitiveness has been to argue for continuing protection.

(8) Overall Contribution to the Economy

The net contribution of the TVI to the South African economy was strongly negative in 1984. *Indeed, local manufacturing of televisions cost the economy 1,2 times more foreign exchange than was gained in added value*, which in turn only existed because of protection and barriers to entry. Note again that each job in the TVI cost the economy R33 125 in foreign exchange usage. This was balanced by value added per employee of R26 250. *On balance, however, the cost to the economy per job in the TVI was R30 625. This was far in excess of the average manufacturing worker's annual earnings at the time.* For this reason the argument that the TVI should be protected to preserve jobs must be considered against the potential uses of the foreign exchange used by the TVI.

Table B-11: Net Contribution of TV Industry, 1984

ITEM	MILLIONS	VALUE PER WORKER
Value added (direct and indirect)	R42	R26 250
Imported inputs	(R53)	(R33 125)
Cost raising impact[11]	(R38)	(R23 750)
Net Contribution	**(R49)**	**(R30 625)**

(9) Assessment and Proposals for the TV Industry in 1984

To summarise, the TV receiver manufacturing industry in 1984 was characterised by the following features:

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[11] The cost-raising impact of the industry is determined by multiplying the weighted average landed cost of an imported TV set, without duties (R192) by the average number of sets sold (300 000) to give a figure for the total landed cost to the economy if all sets were imported duty-free (R57,6m). This was then subtracted from the figure for total ex-factory sales (R95,9m - R57,6m = R38,3m). This figure, of course, does not include the opportunity cost to the economy of resources used to manufacture and purchase TV sets locally, or a comparable calculation for nominally 'local' inputs with a high import content.

- Fixed capital assets in the form of plant and machinery were a very small proportion of total assets. The bulk of assets were in the form of working capital and buildings, reflecting the predominant role of distribution and trading activities in the industry. Productive assets were thus very low in proportion to value added, whilst the ratio of capital remuneration to value added was similar to the manufacturing average. This situation was only possible given restrictions on entry into the industry, both by foreign firms and prospective local manufacturers; were there to be greater competition, profits as a percentage of value added could be expected to fall more in line with the small size of actual productive assets.
- Although the industry was reasonably productive in its use of inputs, imports of materials and the cost-raising influence of protective tariffs meant that the industry was a significant cost to the South African economy. All of this had to be considered in the light of a very high level of effective protection.
- The technological contribution of the TVI was minimal, since it was based mainly on assembly if imported parts. It could hardly be regarded as a training ground for a sophisticated electronics sector, as the government had initially hoped (an upon which many of the 'ground rules' for the industry had been based).

The BTI's 1984 report unsurprisingly found that the TVI resulted in a net cost to the South African economy of local manufacturing activities, and doubted that the TVI could ever contribute positively.

It felt, however, that the TVI should be given a chance to try. To this end, it recommended that the TVI move away from assembly of imported kits towards increased use of locally-produced components. To stipulate a *minimum* local content, however, as in the case of automobiles, would serve no purpose, since the single most costly component, the picture tube, could not feasibly be manufactured locally. Nevertheless, the BTI felt that there were some imported components which could be. Thus, as an alternative to continued tariff protection, the Board proposed that manufacturers be encouraged, by means of rebates of excise duties, to source more components locally. The Board felt, however, that such an approach would only work if the unit cost of locally manufactured components could be lowered through significant component exports. This could be encouraged by rebating excise duties on completed sets to the value of local components used by the manufacturer, as well as the value of any components exported.[12] The BTI thus recommended the following:

- An experimental period in which the TVI be allowed to reform itself. This would involve a 12-month period of 100% duty plus the 35% excise duty, without the R500 less FOB alternative (which worked out higher for many sets), followed by a second 12 months at a 60% duty plus the 35% excise duty. This was to be accompanied by provision for rebate of the excise duty equal to the amount of value added in the manufacture of components and materials either used in locally made sets or sold for export. Thus, although both local and imported sets would be subject to the excise duty, local manufacturers had the opportunity to reduce their excise rate through

[12] Protective duties on imported components would not be desirable because the latter were also used by other local electronics industries, an issue which has caused continual problems in the search for an adequate trade regime for the TV industry until today.

increased net local content. Logically, the Board also recommended a reduction of duties on picture tubes to free, since there was no chance of local production. The duty on TV cabinets was to be reduced to 25%, in line with radio cabinets and similar furniture. It was assumed that loss in state revenue consequent on the reduction of duties would be balanced by increased sales of TVs, still subject to a 35% excise duty.

- With regard to the restrictions on entry, the BTI felt that the assembly nature of the South African TVI meant that there were, in fact, no significant economies of scale. Capital investment in productive facilities was quite low. New entrants would reduce prices and thus net profits to the existing manufacturers, but it was assumed that increased sales overall should maintain individual volumes and prevent an increase in unit costs to each manufacturer. It was also assumed that new entrants would face a significant barrier to entry in the form of existing product differentiation and brand loyalty. There was therefore no basis for licensing of manufacturers, for SABS quality standards (which had the effect of restricting entry) of for quantitative import controls or manufacturing quotas.

The BTI made clear in its conclusions that the TVI was being given a second chance, and that its recommendations were virtually an 'experiment'. Should this experiment fail, the BTI would not hesitate to recommend the abandonment of local TV production.

c) The TVI 1986-1989

(1) The Standardised Chassis Scheme

The BTI's 1984 recommendations were accepted, but only implemented after a two-year delay. In May 1987 the customs duty had fallen to 60% *ad valorem* on imported TV sets and monitors of a value not exceeding R800. The additional 35% contra customs duty was retained, as were quantitative import controls — against the BTI's recommendations.

In a report of December 1986, the BTI recommended a new development strategy for the TVI (BTI, 1986). Once again, this was designed to solve the problem of dependence on imported components. This scheme involved the following:

- The *ad valorem* duty on television receiving sets of a value not exceeding R800 each was reduced from 100% to 60%. The 35% contra excise duty and quantitative import controls were retained.
- Schedule 6 of Section 75 of the Customs and Excise Act was amended to allow a maximum 7% rebate on the value of components used in TV manufacture, plus a rebate of the duty equal to the value of exported components. A full 28% rebate on components would be granted, however, if TV sets were manufactured according to "a programme approved by the Director-General of Trade and Industry".

The programme in question was set up to design and develop a standardised monochrome television chassis. Participating manufacturers had to contribute R5 for each TV set they cleared for customs and excise purposes. These funds would be administered by the Industrial Development Corporation, and used to finance the chassis project. The rationale behind this effort was the belief that only a locally-designed TV set, using local components,

could improve the poor performance of the TVI, by localising the component manufacturing part of the value added chain. This was so for several reasons:

- Firstly, it was clear that local manufacturers were significantly constrained by the foreign technology agreements which the government-stipulated industry ground rules had required of them. Most manufacturers could not buy local components even if they had been cheaper, and could not export freely outside of Southern Africa. Yet no single manufacturer had the resources (or was willing to commit them even if available) to design and develop a South African set which would free them of these constraints. The standardised chassis plan was meant to harness the capabilities of individual firms and externalise the risks and some of the costs associated with such a major endeavour.
- Moreover, a locally-designed set could be constructed to maximise the use of locally available components.
- Finally, if a South African chassis were standardised and manufactured by all local producers, component manufacturers would enjoy greater throughput than if each assembler used different chassis. Heretofore they had been asked to supply a variety of manufacturers using foreign designs, specifying different components.

Unsurprisingly considering the 28% duty rebate, most of the major manufacturers committed themselves to the standardised chassis scheme. The scheme never got off the ground, however. Subsequently the project was abandoned, for several reasons:

- The specification produced by the Technical Committee was effectively a product specification. This meant that it worked on the basis of a target cost structure, which in turn assumed use of the most cost-effective components. These turned out to be unavailable locally. Net import requirements were actually expected to rise.
- A standardised chassis designed to utilise *presently* available local components would in effect 'lock' the components industry into producing items which were increasingly regarded as out-of-date, leading to technological stagnation. Assimilation of newer digital components might thereby be prevented.
- The scheme was based on a monochrome design. This would only cover approximately 50% of the South African market in unit terms, and only about 35% in value terms. A similar project for a standardised colour chassis was regarded as technologically too advanced for local industry.

There were other problems with the scheme, as well, leading the BTI to note with chagrin that "the provisions for granting a rebate of excise duty have been instrumental only in increasing sales volumes of television receivers by way of modest price reductions. The industry has been placed on a substantially improved financial footing as a result of this measure" (BTI, 1989: 9).

From a policy perspective, the main problems with the scheme and its associated trade regulations were the following:

- Although seven manufacturers had agreed to participate in the scheme, most were bound by license and technology agreements, and had not increased their exports or local sourcing significantly. The 28% duty rebate was merely a windfall; the only reciprocal performance on the part of the manufacturers was their participation in the design and development of the standardised chassis.

- The administration of the 7% duty rebate on components used on TV manufacture was a full-time job for BTI staff. Moreover, numerous problems were encountered with the adequacy and accuracy of supporting information supplied by manufacturers.
- Average rebate claims had been in the order of 3,5% only. This implied that there had been little progress in encouraging use of local components.
- The 60% *ad valorem* duty on imported TV sets under R800 was intended to include semi knocked down (SKD) kits, which are essentially unassembled complete televisions. In practice, however, it was found that manufacturers simply imported different parts of SKD kits on different invoices and paid the duties applicable to CKD components and spare parts. This defeated the purpose of the development programme for the industry entirely.
- The maintenance of quantitative import controls had rendered the reduction from 100% to 60% duty ineffective in encouraging more competitive pricing.

The two-year delay in the implementation of the BTI's 1984 recommendations meant that the TVI had had even more time than envisaged to prepare for tariff reduction and expanded local sourcing of components. The BTI was unequivocal in its displeasure with the industry's response to this opportunity:

> (A)t a meeting held with representatives of the industry in May 1988, it became clearly apparent that nothing had changed or was about to change in future, and that decisions for the ensuing years need to be taken now (BTI, 1989: 4).

(2) Little Progress to 1988

By 1988, the TVI had achieved little by way of improvement in the conditions which had drawn such criticism from the BTI in 1984 and 1986. The technological contribution of the industry was still minimal due to its assembly nature. Moreover, the cost of imported materials and technology needed to sustain this type of industry still far outweighed any benefit. Local content as a percentage of the ex-factory price of a completed set was on average only 34%. The industry's overall net contribution to the South African economy remained heavily negative. The net cost to the economy of the industry had actually *increased* from R49m to R200m from 1984 to 1987. The net cost per job had therefore risen to *R125 000 p.a.* This rate of increase was far in excess of inflation, representing a real increase in net cost. The cost-raising effect of protection had also increased in real terms. Every Rand of foreign exchange saved now cost approximately R7,37 — just less than double the 1984 figure.[13] This DRC-type figure was probably an understatement, moreover, since it did not include depreciation of imported capital equipment. The effective rate of protection as calculated by the BTI was 270%, compared to their target of 30%. Again, this was probably an understatement.

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[13] The Board's maximum acceptable level, by contrast, was R0,30 increased cost per R1 of foreign exchange savings.

d) The 1989 Structural Adjustment Programme

Clearly, the TVI at the end of the 1980s remained unable to make a positive net contribution to the Southern African economy because of its heavy dependence on imported components. In its nearly 20 years of existence, the industry had not gone beyond the kit-assembly stage. Local component sourcing was as weak as ever. As had been feared initially, the industry existed only on the basis of protection. It was recognised, moreover, that one of the key constraints facing the TVI was its dependence on imported components which could not be obtained at a cost which would make local production viable. On the basis of this, in 1989 the BTI decided yet again to take further steps to encourage reduced protection, greater local content, reduced dependence on foreign technology, and an export orientation.

To achieve these laudable (if general) goals, the BTI recommended a new development strategy in early 1989. This revised strategy emphasised the value of the *net* imported portion of a locally manufactured TV set for the purposes of calculating a punitive excise duty, in combination with a gradual reduction of the duty payable on TV sets from 60% to 35%, according to the schedule in Table B-12. The BTI also recommended (i) the discontinuance of the 35% contra customs duty and import control; (ii) the scrapping of the standardised chassis programme, with the return of all funds paid in to participating manufacturers; and (iii) encouragement of exports by means of a duty rebate equal to the value of exports of completed sets or components.

Table B-12

DATE OF REDUCTION	RATE
1/4/90	60%
1/4/91	55%
1/4/92	50%
1/4/93	45%
1/4/94	40%
1/4/95	35%

The 1989 programme stipulated the following with regard to local content:

- The BTI would henceforth attempt to distinguish between value added in genuine manufacturing operations and value arising from handling, packaging or distributional activities.
- An attempt was to be made to make the protective duty payable approximately equal to the price disadvantage of a local set. This would be achieved by setting a guide price for each size and type of TV set. A complex formula was developed to determine this Value for Excise Duty Purposes (VEDP).
- A modification of the excise duty payable was to be introduced, to be calculated on the basis of these target prices and net foreign exchange usage. A manufacturer meeting the foreign exchange targets would pay no excise duty. The excise duty payable on the imported content of each set would be increased, whilst the allowable foreign exchange usage would be decreased as in Table B-13:

Table B-13

Year 1:	35% excise duty with maximum 60% net foreign exchange usage.
Year 2:	50% excise duty with maximum 50% net foreign exchange usage.
Year 3:	75% excise duty with maximum 40% net foreign exchange usage.

- Net foreign exchange usage per set would be calculated as the value of all components, materials, and kits used to manufacture sets locally, *plus* any parts not certified as 'local' by the Director-General, *plus* remittances in the form of license fees, technical assistance fees, etc., *less* any export earnings on completed sets or components (this incentive was to apply in conjunction with normal export incentives).
- Provision was made for a rebate of excise duty based on local content achieved, and for full rebate of excise duty and duties on imported components for manufacturers of monochrome sets at a value for duty purposes under R110. This was to encourage availability of a cheap TV for lower income consumers. The Board proposed to monitor retail prices of such sets to ensure that this goal was adhered to in practice.

To administer this programme, the BTI set stringent reporting requirements for the TVI, covering a wide variety of critical information on foreign exchange usage, component imports, TV exports, etc.[14] These proposals were put into effect from April 1989. Significantly, the Board hinted that such a development strategy might be applicable to the entire electrical HEDs sector.

The BTI's recommendations were accepted in broad terms by the government, and after negotiations with the TVI, were implemented from July (instead of April, as originally planned) 1989.

(1) Changes to the SAP Post-1989

Unsurprisingly, the 1989 SAP was not popular with the TVI. It was felt that the programme ignored the TVI's inability to increase local content due to the weakness of the local component sector. The general feeling was that the TVI should be allowed to import components freely in order to build a strong local market based on price reductions.

The BTI (now the Board of Tariffs and Trade, or BTT) quickly agreed to amend the SAP in response to such concerns. In a major step, it agreed to allow full rebate of duty on approved imported components (BTI, 1991a). This was intended to avoid double-charging manufacturers who otherwise would face normal duty on the components as well as the punitive *ad valorem* excise duty on net forex usage. In an unforeseen side-effect, however, several new 'screwdriver' firms took advantage of this duty rebate by importing and assembling SKD (semi knocked-down) monochrome and some colour kits, selling them at very low prices through cash discount chains under no-name brands. This led to a sudden drop in market share for the major manufacturers of branded products. The TVI again pressed the BTI which agreed to institute a major amendment. The amended SAP (BTI, 1991b) included the following changes:

- The gradually increasing *ad valorem* excise duty was scrapped and replaced by a flat 35% duty. This duty would be subject to a rebate for local content to be determined by a complex formula based on the VEDP and a local content factor.
- Under the amended SAP the combination of the 35% *ad valorem* customs duty and the rebate factor produced a net rate of nominal protection of 20-25%, depending on the degree of local content achieved. This was clearly too low for industry survival. In fact

[14] I tried to obtain this information from the BTI and from firms, but was unsuccessful.

a 40% surcharge, implemented several years previously for balance of payments purposes, had come to serve as a protective duty. Perhaps to salve its conscience at this breach of intent, the BTI accordingly recommended that the surcharge be withdrawn and combined with the current customs duty of 50% to form a flat duty of 90%. This duty would in turn be reduced by 10% p.a. , to a rate of 50% *ad valorem*. By this time, the combination of the customs duty, a 3% *ad valorem excise duty*, a 3% *contra* customs duty,[15] and the rebatable 35% *ad valorem* excise duty would result in a net nominal tariff of approximately 30%, which was the BTI's original intention.

This recommendation was accepted in December 1991 and the new flat duty of 90% (plus 6% fiscal duties) was implemented in July 1992.

e) Assessment of Policy Towards the TVI

At present, the TVI is in year two of its amended SAP. The duty structure is intended to change as in Table B-14.

Table B-14

DATE OF REDUCTION	RATE
1/6/92	90%
1/6/93	80%
1/6/94	70%
1/6/95	60%
1/6/96	50%

By 1996, the net nominal rate of duty for the TVI will be approximately 30%, based on the BTT's estimate of the relationship between the *ad valorem* customs duty, the *ad valorem* excise duty, and the rebate factor. Several questions arise here: (i) can the TVI survive this? (ii) what will be the effective rate of protection when the SAP reaches its penultimate stage? (iii) will this be acceptable to the economy and to South Africa's trading partners — especially under GATT?

(1) Can the TVI Survive the BTT's SAP?

Interviewees were by no means unanimous about the prospects of the TVI under the amended SAP. Most felt that the industry will not survive the programme, and faces closure within three years should it not be suspended.[16] On the other hand, some argued at the same time that the industry could live with a net *nominal* duty of 30%, which is what the BTT expects by 1996. What is the problem, then?

- Firstly, *the problem of high overhead costs is not addressed by the SAP*. Only increased throughput could solve this, and this is doubtful (see below). Reduced product prices could assist here, as price elasticity for television is high;[17] but even increased throughput is unlikely to put local manufacturers on a competitive basis as long as component costs remain high.
- Secondly, the SAP seeks to penalise forex usage by a punitive *ad valorem* excise duty; the TVI wishes to comply. *Yet the local component industry cannot supply an effective*

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15 Both imposed previously for revenue purposes.

16 The sole exception was a factory manager recently brought in from a European technology partner, who had strikingly different view, to be discussed below.

17 Interviews, Manager, Special Projects, Electronics Division, Company A.

local alternative. Combined with this is the need to purchase proprietary ICs, which often only come in kit form.[18] The BTT's target of a net 30% tariff may thus be unattainable because local content *cannot* be increased without raising price, compromising quality, and abandoning brand premiums.

- Finally, *as long as television manufacturers have no choice but to import kits, duty or no, the small price differential between the latter and assembled sets will continue to make it impossible to add value without protection.* Although the industry might be able to survive until 1996, a net duty of 30% will erode rapidly under current inflation differentials between South Africa and its trading partners. This problem is mitigated somewhat by high import content, which is subject to lower offshore inflation rates. Ultimately, nominal *ad valorem* tariff rates will have to increase in order to maintain the net 30% protection.

It would appear that the TVI is 'structurally' unviable as long as it lacks three basic elements: (i) local design capacity to free firms from dependence on proprietary components, allowing them to purchase locally, (ii) an effective local components sector to supply them, and (iii) an expanding local or export market to reduce overhead costs.

(2) Effective Rates Of Protection Under the SAP

As we have seen in Chapter Four, the effective rate of protection for the TVI is presently in excess of 500%. This is based on the duty rate 82,15%, which is the BTT's estimate of the effective rate once the duty formula is applied (BTT, 1991b). Even under the most generous interpretation, a duty rate of 50% — the BTT's nominal goal — would result in an ERP of over 350%, and a domestic resource cost of R13,41 to each Rand of imports replaced (see Chapter Four).

(3) Acceptability Of The SAP[19]

Of major concern to the TVI at present is the attitude of GATT to South Africa's manufacturing industries. A nominal tariff of 50% would probably not be acceptable even if South Africa is reclassified as a Developing Country under GATT's Uruguay Round. Even if it is, such heavy protection of a major traded consumer item will not be acceptable, especially given the undistinguished history of the TVI and its low employment levels and high DRC and ERP.

The final version of GATT, signed in December 1993, does not appear to be at all propitious for the South African television industry (or indeed for the HED industry in general). GATT's sweeping provisions on tariff reduction for manufactured goods, coupled with its clampdown on 'infant industry' and export subsidies and greatly strengthened procedures for action by trading partners through the new World Trade Organisation, mean that South Africa will come under great pressure to harmonise its tariff system with that of other GATT signatories. This implies two things. Firstly, it is unlikely that the levels of protection presently envisaged for the TVI will be acceptable. They are simply too high, and will have

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[18] Interview, Factory Manager and Engineering Director, Electronics Division, Company A.

[19] The final text of GATT became available two weeks prior to the final revision of this report (January 1994).

to remain so should South Africa's inflation rate remain higher than that of its trading partners. Secondly, as South Africa comes under pressure to correct its tariff structure, it may become necessary to select industries which are worth the political and diplomatic cost of pushing for developing country exceptions. Given the TVI's poor track record and present situation, it is likely to be a prime candidate for jettisoning in such a process.

This is probably desirable from a domestic point of view, as well. We have seen in Chapter Four that the cost of local production of televisions could be enormous over the course of a five-year electrification programme. The cost of imported parts for televisions alone accounts for over 70% of projected forex requirements. Although the projections envisage a slight overall benefit in terms of import replacement, this does not take into account other factors such as the expansion of the market in response to lower prices, movement of manufacturing assets into other activities, and so on.

On balance, it is unlikely that the demise of the TVI would be a great loss to the South African economy. Although nearly 6 000 workers stand to lose employment, this must be weighed against the tremendous cost to the economy of components imports and higher prices. The actual number of factory production workers facing job loss is more like 3 000. Such a cost seems set to be permanent, as well — as there is little prospect of a change in the pattern of factors which inhibit viability.

3. Summary and Conclusion

a) Basic Strengths and Weaknesses

The South African TV receiver manufacturing industry was founded in the early 1970s in order to supply the impending local market and to serve as the basis for a wider electronics industry. It was to supply skilled labour, expertise, and a market for electronics components. Extremely high rates of effective protection and restricted entry were allowed to encourage the industry to develop.

Two decades later, the industry remains essentially unchanged. Its net contribution to the economy is heavily negative; its products are uncompetitive with imports; and it is still a net importer of components. It has also failed to serve as the basis for a wider electronics industry, for the simple reason that assembly of imported components is a simple procedure which generates few skills and requires little local input. Firms which have gone beyond simple assembly face significantly higher costs than importers and the fly-by-night firms which have taken advantage of loopholes in the BTI's 1989 programme to assemble imported semi-knocked-down (SKD) kits at low cost, selling them as locally 'manufactured'.[20]

To summarise, the TVI's problems can be stated as follows:

- *Domestic value cannot be added without protection.* Its net contribution to the economy is strongly negative, and it cannot survive without significant protection. In short, the

[20] This loophole looks set to close.

real site of value added is in component manufacture -- which is located primarily offshore.

- *Components costs will remain high.* There are insufficient economies of scale to produce major components such as CTV picture tubes locally.[21] The Southern African CTV market is currently about 350 000 units. As a result the industry must import such higher value-added components, sourcing only simple items such as cabinets and certain electronic items locally. Moreover, most local components remain significantly more expensive than imports, and of lower quality. Licensing agreements with foreign technology partners which the government encouraged in the early 1970s have led to a situation in which component suppliers are faced with a proliferation of items required by the local market. This has further prevented them from achieving competitive volumes in specific components. A related problem is that component suppliers charge a 15-18% premium on proprietary parts required for branded units. The local industry lacks the skilled personnel and R&D infrastructure to move into manufacture of original equipment, which might liberate it from this problem.
- *Overhead costs are higher than those for comparable plants overseas due to lower volumes.* As we have seen, however, his may be a secondary problem, and may be due primarily to the high marketing and administrative costs associated with the corporate structures involved, as well as attempts to increase margins to compensate for low volumes.
- *Major existing firms are oriented towards production of branded products, and cannot compete with low-cost manufacturers who have sprung up recently.* The latter are probably aiming for a more realistic market, however, and may be serving an important purpose by posing this problem for the major firms.
- *Manufacturers have not seriously moved in the direction of skills-based flexibility*, which is the main prerequisite to flexibility in production — which might allow a more viable TVI.

In general, the TVI has served until recently as a source of abnormal profits for a few manufacturer/distributors. The net cost to the economy over the next five years of television supply as presently constituted would be enormous. This must be taken seriously when looking at policy for the industry's future.

b) Assessment of Past Policy

The BTI's approach to the TVI has been to use the threat of lower tariffs to force the TVI to increase its use of local components. This was to increase 'real' local value added in order to reduce its net drain on the economy. The initial attempts of the early 80s, which involved rebates on the use of local components, were not successful. Neither was the misguided attempt to develop a standardised monochrome chassis. The 1989 structural adjustment programme, which seeks to penalise net foreign exchange usage and encourage more competitive pricing, has succeeded mainly in forcing less efficient producers to close down, and in flooding the market with cheap imported sets and kits. In addition, the current

[21] Interview sources.

recession has hurt manufacturers' financial performance, leading to a situation of terminal-threat to the industry.

In retrospect it can be seen that the BTI's approach has been misguided:

- Firstly, *the initial ground rules and conditions for the industry were extremely protective, and investment plans were based on them. This did more to shape subsequent development than anything else.* Moreover, these rules explicitly tied local manufacturers to the foreign technology partners who now charge them a large premium to buy the proprietary components needed for the branded products the local TVI produces. Under these conditions, it was unrealistic of the BTI to expect manufacturers to develop into competitive firms. Waiting 10 years to re-examine the situation only made matters worse.
- *It is evident that the problem of low local content cannot be solved by changing market signals only.* It makes no sense to penalise local manufacturers for not using local components which are either more expensive and of a lower quality or not available at all and then to criticise them for not exporting. A more reasonable approach would be to examine the capacities of the local industry and to identify whether or not the qualitative conditions exist for successful component manufacture, and to base decisions for the TVI on this. *In other words, any industrial policy towards the TVI should start with the beginning of the value added chain, not its end.* The TVI is not uncompetitive in what it does — assemble televisions — but it cannot be price competitive as long as the components it assembles remain expensive.
- *The BTI has never addressed the possibility of looking at the TVI within the context of a group of products which could be manufactured in flexible plants, thus reducing the overhead recovery burden on televisions.* There has been a tendency to see television manufacture as a separate industry, when in fact it is a specific product within the *electronics* industry.
- Finally, *BTI policy towards the TVI has been so unstable and unpredictable that manufacturers hesitate to invest for fear of subsequent changes.*

c) Issues For policy

In retrospect, it can be seen that the problem of production volumes in the TVI is only a mediate problem. The proximate problem is overhead recovery. It is true that it is not possible to recover overheads on television manufacture alone, since the market is not big enough. But this is taking the wrong approach. The problem is not the product, its market, or volume. The problem is overhead recovery in a factory.

The basic processes used to produce TVs are adaptable to a variety of electronic products. If a variety of products could be produced on them, overhead recovery could be spread across a greater number of units. This in turn would solve the basic *factory* problem and *obviate* the product problem. The basic policy goal, then, does not necessarily need to be an increase in market size or volume for TVs. *It should rather be to facilitate the attainment of flexibility sufficient to allow production of a variety of products on a small batch basis, at a competitive cost.* This would require:

- Training of workers in flexible, multiple skills.

- Reduction in change-over times on automated equipment such as auto-insertion machines to allow maximum flexibility.
- Access to competent, motivated, innovative factory management.
- Integration of production engineering, operations management, and basic product marketing functions *at factory level*, to allow maximum effective product diversification.
- *Treating the factory as the basic unit of business instead of the wholesaling division.* This present opposite philosophy is a product of the brand orientation of the companies in question. This is not to say that branded, quality products should be abandoned, only that factories should be free to produce whatever they can sell. *Manufacturing should be treated as the source of value added, not the 'rent' deriving from owning a brand name. Only the former is a developable source of competitiveness in the long run.*
- Commitment of financial and management resources by upper management to the process of flexibility achievement and product diversification.
- This would leave only the problem of inability to obtain components at lower cost directly from OEM manufacturers. At present the mark-up by technology partners-cum-middlemen is about 15-18%. It may be possible for some manufacturers to manufacture competitively with this burden if they: (i) reduce their overhead costs in the flexible, multi-product manner suggested; (ii) reduce their administrative and overhead costs by marketing directly from factory level where possible; and (iii) moving into low-price, high volume products for sale to the growing cash retail market — which may allow purchase of discount generic components directly from source.

The question of whether the TVI might be able to achieve these goals is essentially a subjective one. Given its history, it seems highly unlikely that the TVI could, in fact, become a competitive industry along these lines.

C. Small Appliance Manufacture in South Africa

1. Introduction

a) Background

The South African small appliance industry (SAI) is a small industry, as we have seen in Chapter Two. It is relatively healthy compared to the white goods and television industries, mainly because its products are relatively inexpensive and often lack close substitutes. The industry has come under increasing competition, however, from Hong Kong-based plants in the "New" south of China who are increasingly able to export to South Africa in spite of average nominal tariffs of 30%.

Unfortunately, like the white goods industry (WGI) the small appliance industry (SAI) is not well served by existing research and is rarely mentioned in published sources. It has not been subject to much attention from the BTT. Nor does it have an industry association

which could be used as a basis for information gathering. As a result, the following section is based primarily on interviews conducted at one South African firm and one Australian firm.

2. Small Appliance Industry Vital Signs

a) Structural Characteristics

(1) Market Structure And Barriers To Entry

The South African small appliances industry is dominated by Amalgamated Appliance Producers (AMAP), which controls 60% of the domestic market. AMAP brands dominate in such key items as frypans, hotplates, jug kettles, steam irons, and toasters. This is because the firm is an amalgamation of the country's most popular brand names in small appliances: Lion, HAZ, and Tedelex. The three groups merged in 1992 under the joint control of Lion Match (controlled by South African Breweries) and Tedelex. The rationale for the merger was familiar and laudable: it would allow the three companies to achieve economies of scale in manufacture and distribution which would allow it to compete with lower priced imports from the Far East. The merger, however, involved several plant closures, retrenchments, and relocation of most manufacturing activities to New Germany, Natal.

The only other major South African producer of small appliances is Nu-World Industries, who produce Ideal brand appliances, which generally hold 10-30% of market share, depending on the product, mostly in lower-priced items.

Like the TVI and WGI, firms such as AMAP and Nu-World are both producers and importers of small appliances and based supply decisions on relative costs rather than on manufacturing aspirations. At present, the AMAP manufacturing philosophy is one of break even — the goal is for sales to the parent firm to meet production costs at a price allowing acceptable wholesale margins but no plant-levels surplus.

(2) Linkages To Other Sectors

Unlike the TVI and the WGI, who concentrate mainly on large retail outlets, the SAI supplies its lower-cost products to shops ranging from cash discount chains, such as Dions and the hypermarket chains, to local supermarkets and cafes. There has been a distinct tendency in this industry, as in the TVI and WGI, towards lower stock levels by these retailers. There is little reported dialogue with retailers on product specifications except on high-end imported items.

The principal inputs to the SAI come from the local metals, plastics, and switchgear industries. A certain proportion is imported, although duties on raw materials discourage this. Prepared steel or aluminium billet is used for iron heels for irons; cold-rolled sheet metal is used for toasters and the like; powdered polypropylene is used for injection moulding of plastic parts such as kettles and iron tops; and switchgear is used throughout. In most cases parts are fabricated in the factory from basic materials, although the South

African case study plant also bought in many parts from local subcontractors. Components such as kettle and hotplate elements generally come from local suppliers in the Natal and Western Cape regions who also service the white goods industry.

(3) Ownership and Managerial Structures And Linkages

As we have seen, AMAP is owned by two of the country's largest consumer goods conglomerates, SAB and Tedelex. Both appear to have given AMAP a free hand to conduct its business as it sees fit. Management interviewed expressed satisfaction with the role played by these parent companies, stressing that they were essentially free to pursue opportunities for trade as they saw fit.

It is likely that SAB's influence has helped AMAP to make the transition to the relatively progressive manufacturing company that it appears to be. SAB has made extensive use of management practices such as 'green areas', quality circles, flexible workteams, cellular layouts, and similar practices, which are also widely used in AMAP's manufacturing facility in New Germany, Natal.

This shift is significant, since the previous owner of the plant had not made use of these techniques; they were still relatively new when I visited the plant but were running well. According to the factory manager, SAB had provided consulting assistance in developing these practices and provided ongoing support for AMAP as needed.

(4) Links To Government

No significant state links of any kind beyond normal tariff and trade representations were identified, but a potentially significant process was underway as research was being conducted. Early in 1992, ESKOM put out a call for tenders to supply 100 000 irons, kettles, and toasters as part of its electrification programmes in urban black areas. It was intended that these appliances be provided as part of the hook-up process and would be charged to the consumer's account at a minimal fee. The SAI is thus seen by ESKOM as a potential ally in the drive to encourage electricity use in order to provide economic justification for mass electrification programmes.

This may be a significant process for all involved. Indeed, it is not new to South Africa. Municipality-supplied appliances have played a role in electrification of Durban and Cape Town (Theron, 1992), and ESKOM agents have been active for some time in encouraging residents of newly-electrified areas to purchase such appliances.

Unfortunately the situation had not been clarified at the time of writing, but several interviewees mentioned that tenders had been submitted for the contract, which would provide a major opportunity for the firm winning the contract. It was also unclear whether foreign firms were invited to tender, or whether any stipulations with regard to manufacturing requirements had been made. This will be an important process to watch, as the concluding chapter will discuss further; it may provide an indication of some of the opportunities and pitfalls which future industrial policy will have to address.

b) Competitiveness

(1) Cost Structures

Table C-1 lists some comparative ex-factory cost data for selected small appliances. The first column under each heading lists the percentage of each items contribution to average ex-factory price; the second is the Rand equivalent of that cost. It can be seen that on average products coming from the south Chinese plants now entering the South African market are 25% cheaper than local products.

Table C-1: Costing Comparison: South African and South Chinese Small Appliance Firms

Source: Interview sources

	South Africa		China	
Plastic Kettle				
Price	100%	R40,00	100%	R30,00
Materials	84,0%	R33,60	88,4%	R26,52
Labour	5,0%	R2,00	10,0%	R3,00
Overheads	16,0%	R6,40	1,6%	R0,48
Hotplate				
Price	100%	R67,00	100%	R50,25
Materials	80,0%	R53,60	86,6%	R43,52
Labour	6,0%	R4,02	12,0%	R6,03
Overheads	14,0%	R9,38	1,4%	R0,70
Automatic Iron				
Price	100%	R24,50	100%	R18,38
Materials	55,0%	R13,48	78,8%	R14,47
Labour	12,5%	R3,06	24,5%	R4,50
Overheads	32,5%	R7,96	3,3%	R0,60
Steam Iron				
Price	100%	R45,00	100%	R33,75
Materials	61,0%	R27,45	75,2%	R25,38
Labour	11,0%	R4,95	22,0%	R7,43
Overheads	28,0%	R12,60	2,8%	R0,95

(a) Overheads

The major price differential is in materials and overhead costs. Overheads in the Chinese plants are on average only a tiny fraction of those faced by South African plants. Unlike television assembly, the SAI does enjoy significant economies of scale because of its reliance on fabrication processes and 'lumpy' capital equipment.

(b) Input Costs and Local Supply

Table C-1 also shows that materials and component costs are significantly higher than for the Chinese plants, with the exception of irons, which use a large proportion of relatively cheap South African aluminium.

Nevertheless, as in the television industry, component supply and materials costs have been a major obstacle to competitiveness in the SAI. Unlike the TVI, however, which imports the bulk of its inputs and thus represents a net drain to the economy, the SAI purchases most of its inputs locally. Considering that this has been a prime goal of industry policy towards the TVI over the years, the SAI's experience in this regard is illuminating.

The South African firm visited uses over 300 local suppliers, and only 20% of inputs by value were imported. Nevertheless, this was regarded as one of the prime *obstacles* to

competitiveness by the firm. The problem is that local suppliers are simply too expensive and unreliable:

- Raw materials prices are nearly double those of imported products. For example, the firm studied used 300 tonnes of polypropylene per year, almost all sourced locally. Yet the local product was on average 46% more expensive than that available to competitors. Rubber could be sourced locally at R4 000 per tonne compared to R2 000 per tonne to competitors.
- The average price premium paid for local components is almost exactly equal to the rate of duty applicable to those items — 25%. This is due both to duties on the components and on the raw materials used to make them. For example, materials are 50% of costs for manufacturers of cooking elements; in turn, the prices paid for these materials are 15% higher than those paid by overseas firms. This is a significant disadvantage. For example, the materials cost in a South African hotplate element is R9,80, whilst that faced by one UK firm familiar to the factory manager of the plant visited was R7,80.
- Tooling costs, which are critical to manufacturers of all HEDs, were cited as being significantly more expensive locally. Interestingly for industrial policy, it was argued that the Phase Six programme for the motor industry had led to a shortage of toolmakers, thus making it difficult to set up production of new models competitively.

Nevertheless, the firm interviewed sought to develop close links to local suppliers, mainly by entering long-term contracts with fewer of them, sharing engineering personnel and cost data, and refraining from encouraging aggressive price competition between them. It was recognised that a local components industry was a key to long-term competitive success, whatever the short-term costs.

(2) Productivity

Table C-2 lists various measures of productivity and performance for the South African and Australian firms visited. It is striking that basic performance measures are very similar for both plants: throughput and changeover times; stock turns; defect rates; supervision and R&D levels. This suggests that at the level of what *plants* do — convert inputs into quality output — the South African plant is as productive in physical terms as its Australian counterpart. The difference evidently lies in the following:

- Higher South African materials costs, as described above.
- The vastly longer time taken by South African suppliers to deliver orders, and the radical impact this has on lead times.
- The amount of stock carried as a result of this supply problem, coupled with the higher principal and interest costs faced by the South African plant.

Note also that the South African plant uses considerably more capital per worker, but achieves a higher output per worker by value: paradoxically, the South African plant is more capital-intensive. This is largely a function of the lower capacity utilisation levels of the South African plant, and higher wages paid to Australian workers.

Table C-2: Competitive Comparison: South African and Australian Small Appliance Firms

Source: Interview sources

	Australia	South Africa
Average batch size	2 000	"1"[22]
Key changeover times	10-20 mins.	30 minutes
Lead times	1 day	16-18 weeks
Throughput times	2 days	2 days
WIP levels	2-3 000 units	11 000 units
Stock turns	4,25	5
Defects as a % of output	6%	5%
Output/K ratio	2,8:1	0,32:1
K/L ratio	R32 188	R55 555
Output/employee	R36 945 p.a.	R133 333 p.a.
Employees per supervisor	93	100
R&D as % of turnover	1.5%	1%

It is apparent from this comparison that South African firms need not be less competitive than their overseas counterparts. Yet even if they achieve this, they remain uncompetitive because of the *external context* they face in South Africa. This implies that industrial policy towards such firms may be most valuably applied at the macro and sectoral level - mainly by reducing input costs and improving supply networks and efficiency.

(3) Scale of Production

The South African plant visited produces 30 different products, each in varying quantities. Unit output is drastically lower than south Chinese plants: the South African plant produces about 40 000 toasters per year, whereas a comparable Chinese plant produces in excess of 1m. This results in overhead costs which are on average ten times higher for South African firms.

Unlike a simple assembly operation, such as the TVI, small appliance production is a fully-fledged engineering operation involving fabrication as well as assembly. With fabrication goes expensive machinery, including presses, lathes, NC machine tools, plastic injection moulding machines, and so forth. This in turn implies that unit overhead recovery depends entirely on production volume. Given inflexible equipment requiring relatively long changeover times — such as hydraulic presses and injection moulders — the small South African market implies higher overheads, a familiar story.

The South African firm visited faced this problem. Its capital equipment is 'lumpy' in physical and value terms. It was able to achieve very rapid changeover times in its assembly operations, but was constrained by the need to run efficient batches on its metalworking and plastic moulding equipment. Thus, although the South African factory manager claimed that his firm operates on an internal just-in-time basis and can switch products at will, in reality, this is only partly true. It is impossible that this firm could achieve the true one-batch performance of New Zealand's Fisher & Paykel, for example, which depends heavily on automated materials handling and scheduling procedures as well as sophisticated CNC-controlled fabrication machinery capable of continuous variation in output. It is true that

[22] See below.

his cellular *assembly* operations can achieve this, but it is unlikely that the fabrication and logistical functions could follow suit.

As in the case of the TVI, however, the solution to this problem can really only lie in adopting production methods that are flexible enough to allow many products to be run in a short period without long changeovers. In the South African market context, this means flexible programmable CNC-type machinery and the organisational techniques needed to operate them. The South African firm visited showed that the organisational changes could work. The problem is the high cost and low utilisation levels of the hardware.

Of course, an expanded market would also help to solve the problem, but this is not subject to the direct agency of the manufacturer. Flexible automation systems also require throughput; the point is that it need not be throughput of one specific product.

(4) Product Quality

South African small appliances appear to be of a similar quality to imports. They are not strictly comparable, however, as local firms tend to dominate the lower end of the market (eg. non-steam irons), whilst imports dominate the higher end (such as food processors, coffee makers, and so on). I saw no appreciable difference in the quality of the products at the South African firm visited compared to the Australian firm.

(5) Product Research, Design, And Development

For the most part, small appliances are quite basic in design. Products manufactured locally tend to be simple but effective, whilst more sophisticated products are left to importers. With the exception of one hotplate design, the local firm visited did not undertake any significant R&D, but adapted designs obtained from its technology partners to South African conditions, which specify durability, simplicity, and ease of repair. These activities involved approximately 1% of turnover (a proportion unlikely to be maintained, however, if turnover increased). A great deal of effort had also gone into value engineering at the South African plant; management had had great success in reducing the numbers of parts in certain products, redesigning the factory layout, and conserving space.

By contrast, the Australian firm undertook considerable R&D, and regularly launched its own ranges of products. It employed 30 full-time R&D personnel — 3,75% of its workforce — and spent 1,5% of its turnover on the activity. But it should be noted that this firm was positioned at the upper end of the Australian market, and concentrated on high-quality, differentiated products; new product introduction was part of its competitive strategy. The low-price end of the market had been given over to Southeast Asian firms, as it had proved impossible to compete with them given higher Australian labour, materials, and overhead costs.

(6) Strategic Focus

As mentioned above, the South African firm visited is oriented towards the low-end of the small appliance market. It is also an importer into the higher end of the market, with such activities contributing 20% of turnover. This firm's basic business orientation is to aim for cost competitiveness versus low-end imports, but to settle for cross subsidisation of local

production by import margins when necessary. It seeks to achieve sufficient throughput at its plant to break even on manufacturing costs and earn a margin at the wholesale level through brand leadership.

Its long-term strategy is to maintain and build its brand positioning in order to be able to take advantage of opportunities presented by electrification. Interviewees saw this process as basic to industry survival, but expressed concern that the low nominal protection it enjoyed did not put it in a good position versus imports. In common with others throughout the HED industry, its manufacturing director considered a 30% net tariff to be the minimum needed for long-term survival.

Interviewees at this firm also expressed commitment to developing its manufacturing operations into a flexible, multi-product system which could handle a large variety of products. They saw this as both a necessity in the small South African market and a logical step given the firm's experience in multi-product manufacture. Steps have already been taken in this direction, as will be seen below.

Interviewees at this firm did not see exports as an opportunity at present, as high input costs and stiff competition from the Chinese industry made it all but impossible. It had had some export experience in Africa, which was the destination of 2% of output, and the United Kingdom, which took 3%. The latter exports were based on reasonable price competitiveness against UK products and a long-term contract to supply a chain of retail stores specialising in low-priced products. Exchange rate fluctuations were expected to end these exports soon in spite of GEIS support, of which full advantage was taken.

c) Manufacturing Philosophy And Practice

(1) Factory Layout

The South African firm studied had made a partial transition to a cellular layout, based on flexible assembly workteams who concentrated on a product or family of products. The major limitation to this process, as we have seen, is the need to achieve economies of scale in metal fabrication, plastic injection moulding, and similar processes requiring large investment in machinery. The production cells receive materials and components either from the machine shop or injection shop or directly onto the shop floor from receiving, where shipments of plastic components and packaging arrive daily. Assembled products are packaged on the shopfloor and sent to shipping by trolley.

The factory is not particularly large, but manages to produce 30 different products at a time. To do this it has utilised space quite effectively, although routing of WIP is somewhat circuitous. This is necessitated by the location of the press and injection machinery.

(2) Production Scheduling

Although the production cells are flexible and could switch between products in a matter of minutes, they are not yet able to manufacture on a true 1-batch basis. This is mainly a problem of logistics, as the plant lacks the necessary information infrastructure and materials handling technology to operate a fully-flexible multi-product system. Kanban cards are used to pull components and WIP through the system, although much inventory

was visible. In general the plant tries to operate on a pull basis, but this is essentially notional, as overall it operates on a 17-month forecast.

Just-in-time deliveries have been tried and continue in the case of plastics and packaging, but the logistical problems associated with 300 suppliers of 2 000 different parts proved to be too much to handle. Suppliers also proved to be unreliable, both in terms of timing and product quality, which upset production scheduling. At present about 2 weeks' worth of stock is carried.

(3) Work Organisation

As part of the attempt to achieve sustainable flexibility for the smaller South African market, management at the firm visited had introduced quality circles, green areas, team bonus schemes, and multiskilling programmes linked to work teams. This was seen as essential for the functioning of the multi-product cellular system.

The most pressing organisational (and overall) problem at this plant was identified by interviewees as *management's* inability to handle the logistical demands of a lean, flexible multi-product system. Labour quality was regarded as high, but inexperience and lack of resources made it difficult to devise a scheduling system which would achieve true multi-product production. It should be noted, however, that this plant did not use the sort of sophisticated, computerised, and automated materials flow system used at the New Zealand white goods plant visited — which could not run its 'every product, every day' system without it by any stretch of the imagination. Nevertheless, this does point to key problems: lack of adequate management capacity and slow diffusion of computer-based manufacturing systems essential to full flexibility.

(4) Skills, Training, And Labour Relations

Labour quality at the firm visited was seen by management to be high, as is borne out by comparative physical productivity. Although labour productivity was twice that of south Chinese plants, wage rates were about 5 times higher, resulting in significantly higher unit labour costs.[23]

No specific entry skills requirements were cited for the assembly workers who made up the bulk of the workforce. It was felt that only basic literacy and numeracy were required for new entrants, who are trained on the job. Skills were preferred for operators of machine tools and plastic injection moulding equipment, but were not strictly necessary. The only qualified artisans employed were electricians and fitters and turners who maintained the equipment. Teamworking and problem-solving skills, however, were at a premium, and the factory manager appeared to have adopted a policy of 'ethnic' team compatibility by employing only Indian women to work in assembly cells.

Labour relations seemed calm at the NUMSA-organised plant, which did not strike during that union's wrangle with SEIFSA in 1992. This may have been due, however, to

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[23] I would like to have been able to corroborate these figures with tabular figures showing inter-country comparisons. Unfortunately, I was unable to track down accurate South African wage rates at the five-digit level for use in such comparisons.

management's practice of hiring temporary workers to handle peak periods — and the corresponding threat of an imminent retrenchment.

Subcontracting was also used liberally at the plant. Subcontractors were generally ex-employees who had been set up as suppliers of basic components using equipment bought on terms from the firm. Such arrangements were often created by the plant specifically in order to maintain a flexible supply capacity without having to commit to keeping employees or equipment on the rolls. It was claimed, for example, that any die-casting bottlenecks which might emerge in the case of sudden market growth would be solved by setting up subcontractors to do the work off site.

Temporary work and *de facto* temporary-isation through subcontracting are significant threats to worker security. It is notable that this firm — the most progressive in terms of manufacturing philosophy — was also the one to make most extensive use of these practices.

d) Ability To Meet Basic Needs

(1) Employment

The employment growth potential of the SAI is practically nil. The plant studied supplied the lion's share of the South African market for a number of products, but employed only 300 direct production workers at 80% capacity and was planning to do with less. Moreover, investment in new plant would almost certainly take the form of more automated equipment, improving productivity and requiring fewer workers. A doubling or even tripling of output — more than sufficient to supply any conceivable increase in demand — would result in no more than 500-600 jobs at the most. Only an export-oriented industry along the lines of the South China model could be expected to create significant employment.

(2) Product Affordability and Appropriateness

SAI products appear to be reasonably priced compared to those available elsewhere considering the rate of protection. Most basic products such as irons, kettles, toasters, and hotplates can be had for R30 — R120, depending on the type and features. The local industry also appears to have targeted the low-price end of the market quite successfully, and brand name and premium is not as important as in the WGI or TVI, though still a considerable force.

e) Other Considerations

(1) Age, Condition, and Sources of Equipment

Equipment at the plant visited was generally obtained from technology partners or locally. It was on average 5-7 years old, and regarded as up-to-date. The major sourcing problem with equipment was with tool and die requirements for plastic injection moulding machines, which were expensive because of a shortage of produces locally.

(2) Investment Plans

The firm had no specific plans to invest in further capacity as this time. Such a step would require a significant and sustainable turnaround in the economy.

(3) Environmental and Safety Issues

No environmental issues specific to the industry were identified. The plant visited appeared to be clean and safe, although it was not possible to investigate this in detail.

Restructuring in Action: An Australian Case Study

During the course of the Industrial Strategy Project the author visited several manufacturing firms in Australia and New Zealand. These were all firms which had achieved some measure of success in industrial restructuring, largely in co-operation with organised labour.

The small appliance plant visited is located in Sydney, New South Wales. It is a licensed technology partner of a major United States firm, and supplies 55-60% of the Australian market for its products.[24] Its 1992 turnover was approximately A$170m. Its holds roughly A$60m in plant and equipment (at replacement value), giving an output/capital ratio of 2,8. At the time of research, it operated at nearly full capacity on a three-shift, seven day basis, employing 697 production workers. These workers produced irons, frypans, toasters, and a variety of other products, including lawnmowers and sheep-shearing equipment, in which the firm is a world leader.[25] Notably, its workforce is composed predominantly of recent Asian immigrants to Australia.

The firm has few domestic competitors, but, like the South African small appliance industry, faces a significant threat from low-priced imports from Southeast Asia. As noted earlier, this has prompted it to alter its strategic orientation. Under the previously highly-protective tariff régime, it offered a full range of consumer products. Now, facing significant import competition at the low end of the market, it concentrates on middle- to upper-end products, with a variety of branded items based on a standardised base range. These are higher value-added products -- which helps to compensate for the reduced overall volumes resulting from a withdrawal from the low-end market.

This strategy seems to have worked, although the path has been difficult. The firm is presently profitable after recent losses. Although it suffers the disadvantages of less than optimal scale and higher materials prices — 10-15% above the world average — the firm has managed to maintain market share. This is due to the strength of brand loyalty to its quality products.

At the time of study, the firm was in the process of a major restructuring initiative, implemented jointly by management and the major union at the firm, the Automotive, Metal and Engineering Workers' Union (AMEU). There is an illustrative story behind this.

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[24] Which market share makes it unlike South African white goods or television manufacturers, who compose a competitive oligopoly, but quite like the South African small appliance market, which is also dominated by a single firm.

[25] I am unable to quote unit output figures by agreement with the firm in question.

Under the twin pressures of reduced protection and increased competition from Southeast Asia, the firm had suffered serious losses in the late 1980s. After an ownership change in 1986, the new management decided to move its brand focus more firmly to its present middle- to upper-market status. This called for a major reorganisation of its manufacturing operations. To this end the new management team had identified quality, cleanliness[26] and middle management in the plant as key areas for change.

To facilitate rapid restructuring, the new management team consciously sought to utilise worker knowledge of the plant and its problems and potential. The success of this exercise led to an expanded emphasis on work autonomy, which was reinforced by consultants who were brought in to assist in the restructuring process.

In 1987 the new management approached the AMEU and proposed a move to a team-based production system, which was accepted by the union. This was to be called Value Added Management, but was essentially a quality circle-based, Total Quality Management philosophy. Union involvement and consultation was to become a key to the plant's reorganisation.

The first steps taken were to expand suggestion schemes (which are not quite yet on the kaizen model), use pilot areas to develop and test new work methods, and clean up the plant and make it more comfortable to work in. These led to immediate productivity gains.[27] The next step was to analyse the experience of the pilot areas and generalise it throughout the plant. This involved three processes: (i) setting up more quality circles to form the basis for self-managed flexible work teams, (ii) instituting a quasi-just-in-time kanban materials pull system, and (iii) instituting quality control at source instead of by *ex post* sample.

Significantly, investment in new hardware was *not* seen as a priority, and existing machinery was reorganised on a cellular basis where possible. One aspect of the success of this system was a drastic reduction in supervision and management tasks. *230* managers, supervisors, and quality control personnel were reassigned or took early retirement, and were reportedly not missed at all.[28] The number of shopfloor foremen was reduced from 60 to 7 at the same time — an 88% drop.

At the same time, a kanban-pull just in time system was implemented with respect to some suppliers, who now deliver 2-3 times daily. This was accompanied by a 45% reduction in the number of suppliers with corresponding increases in the length of supply contracts.

The principal results of this process have been major improvements in the plant's productivity and overall manufacturing performance. For example:

- Average batch sizes were reduced from 13 000 units to 2 000
- Changeover times were improved

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[26] Some windows had reportedly not been opened in many years and were crusted shut with grime. This had produced much resentment amongst employees which was not discovered until the management change.

[27] Which were apparently noticed, but not recorded.

[28] Whilst visiting the plant, I saw an entire floor of offices vacated by these managers, in the process of being converted into training facilities for shopfloor workers.

- Throughput times dropped from two weeks to two days
- Stock levels were reduced from 10 000 units to two week's supply
- Physical labour productivity improved dramatically.

This has led in turn to an ability to respond more rapidly to market shifts, save on inventory costs, and improve quality.

The interviewees at this plant, who included a union representative and the chief financial officer, were in general agreement as to the ingredients for success in the restructuring process:

- Worker training in literacy and numeracy in order to cope with increased responsibility for quality control and self-management.
- Training for multiple skills in order to make team-based production feasible.
- Active co-operation and co-management of the process with the union. This is seen as critical, because the plant's restructuring package involved a reduction in the number of formal skill levels and the adoption of a point system in which workers could move up a general skill-wage scale rather than between fixed job descriptions. This in turn required a new industry award for this plant. But most importantly, active union co-operation is seen as essential in gaining support amongst the workforce for the restructuring programme. The increased emphasis on self-supervision and lean production makes this critical.[29]

The basic problem faced by this firm was to bring itself out of a situation of poor profit performance, falling tariff protection, and increased import competition *using the resources at hand*. Since funds were not available to throw into a major investment programme in new equipment, this meant an emphasis on the workforce and reorganisation of the plant. The effort has been quite successful, and the firm is now back in the black.

This firm can teach South African producers of small appliances (and other goods) a great deal:

- It has avoided costly expenditure on capital equipment and has first concentrated on reorganising its existing plant. This has proceeded on the basis of a reorganisation of work first, the machinery.
- It has done so without relatively high input costs, at a time of recession, with duties falling and imports rising. Its restructuring programme was essentially a survival measure involving an abandonment of part of its traditional market focus in order to concentrate on area which it could serve successfully.

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[29] Indeed, management feared the election of a Conservative federal government under John Hewson, as it was thought likely to destroy the gains made at the plant by undermining the very industrial legislation which had been used to legitimise and formalise the restructuring process. Every management interviewee I met in Australia and New Zealand felt this way, and in some cases had actively opposed conservative government industrial regulations.

- It has sought a partnership with its workforce through the major union in order to gain support for its restructuring programme. Its restructuring process was negotiated, not dictated.
- It has been successful in restructuring even with a relatively unskilled workforce, most of whom originally lacked literacy skills in English. It achieved this by co-operating actively with the AMEU in developing literacy programmes.
- It has attacked the waste and high overheads associated with bloated middle management, over-supervision and formal quality control and turned over all three tasks to the workforce. This has not only saved money but has created a situation of relatively greater mutual dependency within the firm.

3. Summary and Conclusion

a) Basic Strengths and Weaknesses

This principal conclusions of this section can be summarised as follows:

1. The South African small appliance industry is very small, and is effectively comprised of just two manufacturing firms. Its products are not competitive globally, but are closer to competitiveness than the television industry.
2. When the cost-raising impact of tariffs on its inputs are considered, it is evident that the industry is not actually 'protected' at all. Average duties on finished goods are 25-30%, as are duties on most components and raw materials, which comprise 50-80% of ex-factory cost.
3. The small appliance firm studied for this report is competitive with a comparable Australian plant studied in terms of its ability to convert physical inputs into physical outputs, but is uncompetitive in terms of its overall cost structure and lead time. This is due to three factors: (i) higher input costs; (ii) unreliable suppliers and the need to maintain large stocks; and (iii) high overheads due to inability to achieve economies on inflexible machinery.
4. The South African small appliance firm studied is headed in the right direction in its use of flexible work cells and just-in-time principles in order to manufacture a variety of products for a mass market. It major task is to achieve greater flexibility by investment in more flexible fabrication equipment, in order to allow it to overcome the problem of high overheads by spreading them across more products. This would be preferable to the alternative of flexibility in fabrication through increased subcontracting, which seems to be the case, at least potentially.
5. As long as the South African economy remains in deep recession, however, the subcontracting option will be hard to resist, and will undermine long-term competitiveness.
6. The firm studied has yet to make a definite commitment to a restructuring partnership with its workforce. Labour relations are essentially paternal, and little progress has yet been made in harnessing workers' tacit skills in order to move towards a fuller use of

this resource. Although skills levels are low, the Australian case study suggests that formal skills are not as important as the development of a sense of quality-responsibility. This can only be achieved and sustained when workers are in fact responsible for the products of their labour.

b) Issues for Policy

The South African small appliance industry can be restructured successfully. It already possesses sufficient capacity to serve the South African market, and would do so profitably under a restructuring programme similar to that followed by the Australian firm studied. The key issues to be addressed by policy are (i) the cost of inputs, including duties, and the efficiency of suppliers; (ii) the quality and capability of management; (iii) the role of labour in restructuring; and (iv) incentives for it to invest in a flexible future.

D. White Goods Manufacture in South Africa

This section looks at the manufacture of white goods in South Africa. Of necessity, it is based almost entirely on research conducted at one South African firm, one firm in New Zealand, and two in Australia. This approach was necessitated by the lack of available material on the South African industry and the unwillingness of other South African firms to participate in the Industrial Strategy Project.

1. Introduction

a) Background

Of the three branches of the HED industry examined in this report, the South African white goods industry (henceforth WGI) is in many ways the most vulnerable to economic fluctuation. Whereas the small appliance industry supplies low-priced products usually bought for cash, and the output of the television industry has no direct substitutes, the WGI supplies products typically bought on hire-purchase, and for which other products or human labour are ready substitutes. Thus, as argued in Chapter One, sales of washing machines and EFS stoves to urban black households have been limited partially due to the availability of female labour on the one hand and coal or wood stoves on the other.

AT the time of writing, the WGI was facing critical conditions, as the recession which began in 1989 seriously affected sales (see Chapter One) and factory utilisation is at an all-time low. Although South African white goods are not as uncompetitive internationally as televisions, they are nonetheless not presently exportable. In many ways the industry is structurally similar to the small appliance industry: key problems turn on high component costs, high overheads, and lack of flexibility.

A crucial question facing the South African WGI, though, is its choice of market orientation: will it continue to manufacture and market branded products for a relatively high-income group, or will it attempt to develop sturdy, low-cost products for a mass market — the People's Fridge? Associated with this is the question of manufacturing technique: like

the small appliance industry, the WGI must attain greater flexibility in order to be able to serve what is in fact several markets in one.

b) Policy Context

State policy initiatives towards the WGI have been scant compared to the television industry. Like the TVI, trade policy towards the WGI has been designed to encourage local component manufacture to increase domestic value added, but has succeeded mainly in raising input costs and undermining protection for final product manufacturers. Although a major BTT study of the industry was reportedly initiated several years ago, it was not completed and the data gathered is not available for scrutiny. In general, state policy towards the industry has been trade policy. Details of the trade regime can be found in Chapter Three.

2. White Goods Vital Signs

a) Structural Characteristics

(1) Market Structure And Barriers To Entry

The South African WGI is comprised of several large firms: Barlows Appliance, a subsidiary of Barlows Manufacturing Company; Tek Corp., a subsidiary of SANKORP; KIC, Ltd., now a subsidiary of Altron company Powertech; and several smaller firms, including Hoover, Univa and Phillips. Many brands of white goods are also imported, mainly by these firms. The industry is highly competitive and pursues aggressive sales strategies in the retail sector. It does not have a strong employers' association, as we have seen, and does not engage in co-operative ventures as far as I could ascertain.

(2) Linkages To Other Sectors

The structure of the white goods 'filiere' is almost identical to that of the SAI, as are the issues it raises. One significant exception is the major role played by hire-purchase agreements in the retail market for white goods. Most white goods sales to low-income purchasers are on some form of credit, whether it be lay-bye, hire-purchase, or overdraft. For this reason, the WGI is particularly sensitive to fluctuations in interest rates, expectations, and state interventions in the retail credit system.

Another issue relating to the retail furniture trade is the role of retail buying power in shaping the development of the WGI. Retailers presently have a choice of several South African manufacturers of white goods, and play one off the other in order to obtain favourable terms. This usually involves extended credit facilities, so that the manufacturer effectively carries the interest cost of stock held at retail level; terms of up to twelve months are not uncommon. More than one interviewee pointed out that any moves towards industry rationalisation would mostly likely be opposed by the retail industry if the latter were to result in a significant reversal of the wholesale power structure. To this no retailer would admit, but the logic is compelling.

From the perspective of basic needs delivery, the fundamental question is by what means eager *potential* consumers of white goods can be made *effective* consumers in a context of severe recession. Both consumers and the industry have an interest in interventions which can help to 'kick-start' the market for white goods and other HEDs. In particular, policy proposals for this industry will have to address the externalities associated with credit conditions determined by the institutional structure of the retail and wholesale market. For example, the reluctance of major banking groups to commit themselves to financing hire-purchase schemes is understandable, but an obstacle both to consumer satisfaction and to WGI recovery. The final section and the concluding chapter will return to this issue.

(3) Ownership and Managerial Structures And Linkages

The major white goods manufacturers are owned by industrial or financial conglomerates. Like their kindred companies the consumer electronics firms, they are part of a pyramidal structure which is mostly responsible for returning a quarterly profit to the head office. Manufacturing plants are in turn part of white goods divisions which are also active importers, and much of the large influx of imports during the upswings identified in Chapter Three can be attributed to these firms' pursuit of short term profit at the expense of their manufacturing operations.

Most interviewees expressed satisfaction with the conduct of relations between head office and manufacturing level, but some did not. In particular, some felt that the corporate structure of the white goods industry tended to inhibit manufacturing innovation in much the same way as the TVI (owned by the same firms). According to them, the basic problem is and has been 'domination of the industry by accountants' as opposed to manufacturers. This is closely linked with an historical attachment to brand name as the source of value added, as opposed to manufacturing. As discussed in the case of televisions, this approach has its roots in the historical origins of the WGI as an import substitution industry for the white population. The consequences of this will be discussed below.

(4) Links To Government

As with the other HED branches, the WGI has no specific links to government, outside of the normal trade negotiation merry-go-round. Towards the end of the ISP, however, white goods manufacturers joined with ESKOM and representatives from popular political and labour organisations to discuss the role the WGI could play in the electrification process. This process should be monitored carefully; the concluding chapter will make specific recommendations in this respect.

b) Competitiveness

(1) Cost Structures

Tables D-1 to D-3 below present comparative cost data for the South African WGI taken from a DAMSA document based on research conducted in the late 1980s. They are the

most detailed figures available to compare the relative cost structures of South African white goods compared to a composite average of representative overseas firms.[30]

Table D-1 presents comparisons of South African products versus comparable importer products. It lists a direct cost comparison between each element of the wholesale cost, as well as the difference between the two.

Table D-2 presents cost differentials for production overheads, components, and raw materials. Chart 2a shows South African and overseas overhead costs per unit and average unit volumes in thousands. Charts 2b and 2c list the extra cost to South African manufacturers of the components and raw materials used in a variety of key products, when compared to those paid by overseas firms. The cumulative cost disadvantage per unit is also shown.

Table D-3 lists the Rand equivalent of the foreign exchange costs and benefits associated with several key products, including shipping. Chart 3a lists the estimated cost of direct purchases, shipping, and imported parts in components used, giving a total forex cost per unit. Chart 3b adds the average value added per unit to the foreign exchange saved by not importing that unit, and subtracts from the result the 'cost-raising impact' of extra cost to the consumer caused by tariffs. By combining these, a theoretical value for the 'net contribution' of each unit is derived.

The following points are of particular importance:

(a) Overhead Costs

It can be seen immediately that South African producers suffer a major disadvantage in terms of overhead costs, based primarily on very low production volumes relative to overseas plants. *This does not mean that the problem with the South African white goods industry is volume.* High overheads are rather the symptom of a manufacturing process designed for mass production in a society which does not have a mass market. To say that volume is the problem misses the point: optimal volume is a function of market orientation *and* technology. The New Zealand plant visited can produce one unit of a refrigerator model a day and be profitable — because it is technologically designed to do so. Arguments for further protection because of high overhead costs beg the question: what will be done about the *causes* of the volume problem during the protected period?

(b) Materials and Component Costs

Materials and component price premiums to local manufacturers are listed in Charts 2b and 2c. Their relationship to overall price disadvantage is best seen in Charts 2c, 3a, and 3b. *In nearly every product, excess material costs are the largest single factor contributing to price disadvantage versus imports.*

(c) Profit Levels

Factory profit is significantly higher for South African manufacturers. As observed in the section on the TVI, this is an attempt to make up for smaller volumes, made possible by significant protective duties.

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[30] This data is based on a very different exchange rate to the one now ruling, but has presented as is as the main point is the relative, not absolute, value of overhead costs, components, etc.

Cost Data On White Goods

Source: DAMSA documents, interviews.

Table D-1: Local vs. Import Costings for Selected Products

Chart 1a: Laundry Products

	Automatic Washers			Twin Tub Washers			Tumble Dryers		
	Local	Import	Difference	Local	Import	Difference	Local	Import	Difference
FOB Price	n/a	R427,00	n/a	n/a	R271,00	n/a	n/a	R200,00	n/a
Factory or landed cost	R720,00	R640,00		R496,00	R448,00	(R48,00)	R320,00	R299,00	(R21,00)
Factory profit	R27,00	R21,00	(R6,00)	R29,00	R14,00	(R15,00)	R13,00	R10,00	(R3,00)
CIF	R20,00	R64,00	R44,00	R19,00	R70,00	R51,00	R3,00	R39,00	R36,00
Customs duties - direct	R28,00	R107,00	R79,00	R28,00	R80,00	R52,00	R4,00	R40,00	R36,00
Customs duties - indirect	R3,00	R0,00	(R3,00)	R6,00	R0,00	(R6,00)	R1,00	R0,00	(R1,00)
Surcharge	R0,00	R43,00	R43,00	R0,00	R27,00	R27,00	R0,00	R20,00	R20,00
Labour costs	R39,00	R39,00	R0,00	R19,00	R19,00	R0,00	R20,00	R20,00	R0,00
Overheads	R116,00	R23,00	(R93,00)	R89,00	R18,00	(R71,00)	R71,00	R14,00	(R57,00)
Material costs	R487,00	R344,00	(R143,00)	R306,00	R221,00	(R85,00)	R208,00	R156,00	(R52,00)

Chart 1b: Cooking Products

	EFS Stoves			Eye Level Ovens			Cooking Hobs		
	Local	Import	Difference	Local	Import	Difference	Local	Import	Difference
FOB Price	n/a	R354,00	n/a	n/a	R542,00	n/a	n/a	R156,00	n/a
Factory or landed cost	R613,00	R568,00	(R45,00)	R925,00	R836,00	(R89,00)	R248,00	R237,00	(R11,00)
Factory profit	R27,00	R18,00	(R9,00)	R37,00	R27,00	(R10,00)	R11,00	R8,00	(R3,00)
CIF	R2,00	R72,00	R70,00	R22,00	R78,00	R56,00	R3,00	R18,00	R15,00
Customs duties - direct	R3,00	R106,00	R103,00	R28,00	R163,00	R135,00	R6,00	R47,00	R41,00
Customs duties - indirect	R9,00	R0,00	(R9,00)	R4,00	R0,00	(R4,00)	R7,00	R0,00	(R7,00)
Surcharge	R0,00	R35,00	R35,00	R0,00	R54,00	R54,00	R0,00	R16,00	R16,00
Labour costs	R51,00	R51,00	R0,00	R60,00	R60,00	R0,00	R14,00	R14,00	R0,00
Overheads	R140,00	R36,00	(R104,00)	R136,00	R27,00	(R109,00)	R45,00	R9,00	(R36,00)
Material costs	R381,00	R249,00	(R132,00)	R638,00	R427,00	(R211,00)	R163,00	R126,00	(R37,00)

Chart 1c: Refrigeration Products

	Double Door Fridge			Chest Freezer		
	Local	Import	Difference	Local	Import	Difference
FOB Price	n/a	R385,00	n/a	n/a	R240,00	n/a
Factory or landed cost	R594,00	R577,00	(R17,00)	R404,00	R408,00	R4,00
Factory profit	R23,00	R19,00	(R4,00)	R27,00	R12,00	(R15,00)
CIF	R7,00	R57,00	R50,00	R8,00	R84,00	R76,00
Customs duties - direct	R0,00	R96,00	R96,00	R0,00	R60,00	R60,00
Customs duties - indirect	R5,00	R0,00	(R5,00)	R2,00	R0,00	(R2,00)
Surcharge	R0,00	R39,00	R39,00	R0,00	R24,00	R24,00
Labour costs	R50,00	R50,00	R0,00	R34,00	R34,00	R0,00
Overheads	R134,00	R36,00	(R98,00)	R78,00	R16,00	(R62,00)
Material costs	R375,00	R280,00	(R95,00)	R254,00	R178,00	(R76,00)

Table D-2: Cost Differentials for Selected Products

Chart 2a: Production Overhead Differentials

	SA O/heads	O/S O/heads	SA Volume	O/S Volume
LAUNDRY				
Automatic Washing Machine	R116,00	R23,00	71	787
Twin Tub Washer	R89,00	R18,00	68	350
Tumble Drier	R71,00	R14,00	89	787
COOKING				
Freestanding Stoves	R140,00	R36,00	165	638
Eye Level Ovens	R136,00	R27,00	62	500
Cooking Hobs	R45,00	R9,00	70	500
REFRIGERATION				
Electric Fridges	R134,00	R36,00	231	851
Chest Freezers	R78,00	R16,00	96	851

Chart 2b: Component Costs Differentials

COMPONENT	AUTO WASHER	TWIN TUB WASHER	TUMBLE DRYER	EYE LEVEL OVEN	HOB	EFS STOVE	FRIDGE	FREEZER
MOTOR	R28,33	R26,48	R18,05	R11,49				
HEATER ELEMENT	R2,06							
CAPACITOR	R1,67	R4,53	R1,49					
TIMER	R13,89	R13,61	R6,56					
CLOCK				R2,31				
SUPPRESSOR	R2,68			R0,76	R0,51			
PUMP								
VALVE								
BARRIER GLASS				R15,98		R10,98		
DOOR GLASS				R11,67				
TRIPLE GRILL								
ELEMENT				R8,47				
DOUBLE ELEMENT				R5,32		R1,30		
BAKE ELEMENT				R5,61		R0,25		
WARMER ELEMENT						R3,39		
THERMOSTAT	R0,85		R0,82	R7,01		R2,89		
HOTPLATE 1000W					R6,11	R4,38		
HOTPLATE 1500W					R14,99	R5,60		
LIGHTS				R0,68	R2,28	R1,26		
TOTAL	R49,48	R44,62	R26,92	R69,30	R23,89	R30,05	R35,33	R25,85

Chart 2c: Raw Materials Costs Differentials

RAW MATERIAL	AUTO WASHER	TWIN TUB WASHER	TUMBLE DRYER	EYE LEVEL OVEN	HOB	EFS STOVE	FRIDGE	FREEZER
MILD STEEL	R10,69	R4,49	R6,68	R15,86	R3,30	R14,92	R6,31	R10,00
STAINLESS STEEL	R2,96							
ALUMINIUM	R19,66	R3,01		R8,81		R5,17	R1,15	
CARDBOARD	R0,75	R1,29	R1,02	R4,69	R0,59	R3,62	R1,42	R2,65
POLYSTYRENE		R4,73	R1,80		R0,43		R3,25	
PVC							R2,84	R2,96
POLYPROPYLENE		R18,96	R1,59					
ABS	R0,59	R1,68	R0,76			R0,91	R5,91	R0,50
XPS	R6,62	R6,02					R4,73	
POLYURETHANE				R5,99			R9,72	R9,74
NORYL/ACETYL			R1,23	R1,74		R1,20		
EPOXY POWDER							R3,22	
TOTAL	R41,27	R40,18	R13,08	R37,09	R4,32	R25,82	R38,55	R25,85

Table D-3: Foreign Exchange Impact of Selected Products

Chart 3a: First-round Forex Costs of Local Manufacture				
	Direct Purchases	Shipping	Import Leakage	Total
LAUNDRY				
Automatic Washing Machine	R157,00	R20,00	R26,00	R203,00
Twin Tub Washer	R146,00	R19,00	R36,00	R201,00
Tumble Drier	R16,00	R3,00	R15,00	R34,00
COOKING				
Freestanding Stoves	R17,00	R2,00	R40,00	R59,00
Eye Level Ovens	R178,00	R22,00	R29,00	R229,00
Cooking Hobs	R31,00	R3,00	R24,00	R58,00
REFRIGERATION				
Electric Fridges	R69,00	R7,00	R51,00	R127,00
Chest Freezers	R71,00	R8,00	R19,00	R98,00

Chart 3b: Theoretical Contribution to Economy of Selected Products				
	Value Added	Forex Savings	Cost-Raising Impact	Net Contribution
LAUNDRY				
Automatic Washing Machine	R182,00	R262,00	(R255,00)	R189,00
Twin Tub Washer	R137,00	R124,00	(R123,00)	R138,00
Tumble Drier	R104,00	R193,00	(R93,00)	R204,00
COOKING				
Freestanding Stoves	R218,00	R346,00	(R208,00)	R356,00
Eye Level Ovens	R233,00	R358,00	(R338,00)	R253,00
Cooking Hobs	R70,00	R107,00	(R83,00)	R94,00
REFRIGERATION				
Electric Fridges	R207,00	R292,00	(R175,00)	R324,00
Chest Freezers	R139,00	R212,00	(R94,00)	R257,00

(d) Net Contribution

On a one-to one basis, South African products are uncompetitive with imports even with duties in place. Nevertheless, if their value added, import savings, and cost-raising impact is taken into account, all white goods products provide a reasonable net contribution to the economy.

The WGI does suffer significant cost disadvantages which make it uncompetitive internationally. The question is whether they can be solved, and whether the solutions are to be found inside manufacturing firms or in the external environment.

(2) Productivity and Performance Measures

Productivity measures were only recently introduced at the South African plant visited, whose current estimates are for 12,5 labour hours per unit of output. Production there is by forecast, in batches of 50-200 at the assembly stage, with a minimum of 600 in the press shop. The latter is determined by changeover times. These had been reduced from 55 minutes to 40 minutes, but 25 is the goal. Average WIP is 10 days' worth. Finished goods stocks of 20 days are held on average. Lead times are from one week to 3-4 months, depending on the accuracy of forecasts and component orders; throughput times are 10 days on average. Of this, approximately 8 hours is spent adding value to materials. Stock turns are very high due to the recession, and very little is presently kept on hand. The capital/labour ratio is R21 428 per employee; the output/capital ratio is 5:1; output per employee is R92 857.

(3) Scale of Production

The plant visited was producing about 100 units per day at the time, although plant capacity is 200 units. By comparison, the smallest plant visited in Australia produced 280 units per day at its present 70% capacity. From the cost comparisons presented above it is clear that South African firms do suffer a disadvantage because of smaller volumes.

(4) Product Quality

It is difficult to compare the quality of South African products to that of overseas firms. On the surface, appliances such as those produced by the New Zealand firm visited and discussed below are far superior to any South African product, as are most appliances available in Europe or North America. The question is: quality for what? The white goods industry internationally faces a stagnant, mainly replacement market in the so-called first world. In this context, product differentiation is a key competitive strategy in some markets (mainly North America) and usually manifests itself in a 'bells-and whistles' approach: load the machine with features of often dubious utility. South African firms, on the other hand, lack the design skills and manufacturing flexibility to produce such products, and generally turn out simple but effective products which perform their basic function no worse than the bells-and-whistle products. In some areas, South African products are of high quality: KIC refrigeration products, for example. There have been complaints from retailers in recent months about the deterioration of local white goods quality, however, which seems to be corroborated by interview sources. This is manifested in the use of inferior steel, shoddy

wiring, defective components, and poor manufacturing. These problems are probably specific to a period in which the WGI is under extreme pressure.

(5) Product Research, Design, And Development

Local white goods firms freely admit to being technologically dependent on overseas partners who supply them with basic designs which they then adapt to South African conditions and preferences. Certainly the local industry has no internationally-leading edge products. Only cooking products are primarily South African-designed due to local preferences for particular features not worth tooling up for larger firms.

This technological dependence is not seen as a problem by the local industry, since product design is not a proximate cause of its recent misfortunes. Instead, product development interviewees argued that their basic research target is the manufacturing process, in order to reduce parts requirements, improve quality, and generally improve manufacturability and value for money. In this sense the local industry is essentially an adapter of foreign technology. Should it wish to become an exporter of original equipment — not likely but not without precedent in a small economy — it will clearly have to develop product design skills, which today are closely linked to production engineering skills in any case.

On this note, industrial engineers at the plant visited complained about a tendency also seen at Company A's television factory: for marketing personnel to dictate product launches without reference to manufacturing realities, such as the current layout of plant, the implications for WIP and logistics, and so on. This indicates that a stronger emphasis on simultaneous engineering would be beneficial to the industry. As has been found elsewhere, it is critical to design and launch new products as a manufacturing exercise, not just as a marketing exercise. It might be more advantageous for marketing divisions to approach manufacturing plants as customers rather than as directors; this would force them to take cognisance of the limitations of their plants and/or to see the manufacturing process as more of an independent source of value added and profit.

(6) Strategic Focus

As discussed in the Introduction, today's South African white goods producers evolved many of their current characteristics in the process of import substitution for the white middle-income market. I would argue that this has had fundamental and lasting effects on the industry:

- White goods manufacturing has historically been based on a mass-production model, suited to the needs of an urbanising white population who were mainly first-time buyers. This encouraged investment in dedicated production machinery and standardised models. Local products came to be geared towards the growing market of middle-income whites, whilst the smaller upper-income white market was served by imports of sophisticated products from technology partners. Lower-income black consumers were not directly served by local firms as they lacked income; furthermore, under *apartheid* they were presumed to be essentially rural dwellers who had little need of such products.
- Because of white goods firms' origins as wholesalers, and continuing import activities, strategy was driven by the need to maintain wholesale margins, not manufacturing

competitiveness as such. Manufacturing philosophy was one of 'break even'; value added was seen to arise primarily in the market as 'brand premium'. The factory manager of the South African firm visited, for example, was of the opinion that the 'real money' was to be made a retail level.

- The finite size of the target market meant that once a situation of relative saturation had been reached, firms were unable to expand production to achieve internationally competitive economies of scale. Instead, they came to rely on continued tariff protection against import competition. Unlike firms in comparably-sized markets,[31] these firms did not move seriously into exports in an attempt to increase throughput. This placed an upper limit on revenue and profitability and discouraged innovative investment and marketing strategies.

By the mid-1970s South African white goods producers were accustomed to production for a small, saturated market and lacked the cost competitiveness to survive without protection. This is not to say that they were structurally 'locked' into this: comparative experience has shown that it is possible for small-country white goods firms to break out of this orientation. Instead, resources and imagination which elsewhere had been applied to innovative product and process engineering for export were rather devoted to maintaining the protective trade régime.

Today this 'marketing' orientation is being questioned by firms who realise that the only growth market in the country is the urban(ising) black market. This poses a dilemma for such firms: do they move into this market with lower-priced, more basic products, or do they attempt to bring the market to them via marketing campaigns based on status and the branded image? The danger is that, as in the TVI, a move into low-priced, basic products can backfire in one of two ways: it can lead to a loss of status for the brand name under which the new range was launched, or it could eat into the market share of the main brand itself. Interviewees at the firm visited argued that it was better to avoid either risk and seek to bring down the cost of branded products through applied engineering at manufacturing level.

c) Manufacturing Philosophy And Practice

(1) Factory Layout

The South African white goods plant visited was a classic assembly line operation. Lines for each product were strung throughout the complex, intersecting with functional areas such as the press shop, galvanising or enamelling shop, and so on. Units moved from station to station on motorised tracks, overhead lifts, or roller tracks. Large areas were set aside for component stocks and defective output. The distance travelled by individual units was enormous in some cases. No cells, group technology areas, or flexible manufacturing systems were in use. However, various self-contained sub-areas were devoted to production of components such as wire oven racks. The factory manager and engineering directors both claimed that there had been much experimentation with layout in recent months,

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[31] Eg. Fisher and Paykel in New Zealand.

intended to reduce average throughput times. The major bottleneck in this plant remained the press shop; assembly operations were claimed to be as good as anywhere else.

The manufacturing facilities of this company, one of the largest and oldest white goods firms in the country, are old, dirty, dark, cluttered — and insufferably hot. The plant itself was originally a foundry, and drippings from those days still dot the floor. This stands in stark contrast to the plant of the New Zealand firm visited, which was clean, orderly, and air-conditioned. Such differences may seem peripheral, but the environment-related productivity improvements experienced by the Australian small appliance manufacturer discussed in the previous section suggest otherwise.

(2) Production Scheduling

A kanban-type JIT system is used in the South African plant, and JIT deliveries are encouraged of suppliers. As we have seen, however, average stock and WIP levels are fairly high, indicating a less-than-optimal operation of the system.

(3) Work Organisation

No real automation is used in the South African plant, and processes which are fully automated in the New Zealand and Australian plants are performed by hand: fabrication of metal parts, enamelling, and so on. As we have seen, the basic work process is a traditional, hierarchical artisan-in-the-press-shop, operative-on-the-assembly-line system. No quality circles, suggestion schemes, teamworking or multiskilling are employed. Quality control is putatively carried out at source, by statistical process control methods.

(4) Skills, Training, And Labour Relations

There are 727 direct and 70 indirect workers in the plant, for a direct:indirect ratio of 9,4:1. Most workers are semi-skilled operatives and are trained on the job, although the firm does reportedly run a training facility shared by the entire industry. None of the interviewees at the plant referred to it when asked about training.

Significant shortages of skilled tool-setters and electronic technicians were experienced by the firm. Many immigrants were employed in technical and management positions. Management regarded labour rates as too high internationally, but as can be seen from Table D-1 they are not significantly higher compared to overhead and materials costs. In general, the plant staff felt that better-educated, more flexible workers were needed to cope with the imperatives of production in a small market.

Labour relations in the plant appeared to be essentially paternalistic, and the plant is not organised by a major union. Consultation with the workforce appears to be strictly top-down — with green areas meetings run *by supervisors*.

d) Ability To Meet Basic Needs

(1) Employment

As is the case with the television and small appliance industries, the white goods industry is unlikely to be a major source of employment growth in national terms. The plant studied, for example, is presently operating at 50% capacity or less, and can expand to nearly full capacity without additional workers. An expansion by a factor of three would result in only an additional 200 jobs with current technology, whilst any move towards a more competitive technology would almost certainly reduce employment. According to interview sources at the New Zealand plant, there is no currently-available labour-intensive production process which could produce competitively at more than starvation wages. It must therefore be recognised that any prospective job growth in this industry is likely to be in associated services: parts, maintenance, and retailing.

e) Other Considerations

(1) Age, Condition, and Sources of Equipment

Capital equipment at the South African plant is mainly Japanese and European, and on average 10-15 years old. It is presently valued at R10m, but would probably cost R65m to replace. It is well maintained, but maintenance costs run into the millions each year. It is claimed to perform well for the purposes for which it was designed, but is clearly antiquated compared to a modern facility such as the New Zealand plant. The factory manager acknowledged that the enamelling process in particular was badly outdated, as were many of the manual machine tools.

(2) Investment Plans

The South African company had no immediate plans to invest either in new capacity or in upgrading of current facilities due to the severity of the recession and uncertainty as to the political and economic future of the country.

(3) Environmental and Safety Issues

The same firm claimed full compliance with South African regulations concerning HFC and CFC emissions. No other specific environmental issues were identified. As mentioned previously, the plant was a highly unpleasant working environment, but interviewees claimed that it met stipulated standards.

f) Foreign Case Studies

Three white goods plants were visited in Australia and New Zealand in February-March 1993. The purpose of these visits was initially to gather cost, productivity and performance data to use to compare to the South African firm studied. During subsequent research it became clear that a more important task would be to examine the process and results of plant-level restructuring in both countries in order to gain insights into the sorts of policies

which might favour a similar process in South Africa. (In any case the firms were reluctant to disclose the data sought.)

The New Zealand Company and its Australian Subsidiary

The New Zealand firm visited also was sole owner of one of the Australian plants studied. Both were based on exactly the same production processes and utilised similar methods of work organisation. The New Zealand plant went through the restructuring process from scratch, however, whereas the Australian subsidiary was set up as a greenfields clone of the latter. For this reasons I will concentrate on the New Zealand plant but refer to its twin when appropriate.

The firm in question is an old established New Zealand white goods company with a wide variety of engineering and electronics manufacturing and distributing interests besides its white goods plants, which are located throughout New Zealand. The firm is a public company with a variety of shareholders, including several European firms. Members of the original founding family still retain an interest, however, and one of them is currently managing director. Its annual turnover is in excess of NZ$500m on an asset base of NZ$400m. Exports currently account for 30% of turnover.

The Refrigeration Plant

The refrigeration plant visited is located on the North Island in a predominantly Maori area, and employs mainly Maori and Polynesian workers. It was established in the early 1970s and from the start has been based (like its Australian counterpart) on a computer-co-ordinated flexible manufacturing system which is fully capable of producing 'every model every day'. Indeed, each refrigerator on the production line is different from the next; there are no batches and no minimum model runs. All ancillary processes such as painting, galvanising, and enamelling are done by automated processes.

The plant's production process begins with a computerised production schedule which is drawn up for the day on the basis of orders received from various sources. This schedule is fed into a materials management system which automatically alerts each operator as to which model is coming next. The operator then uses a prepared packet of parts for that model automatically assembled ahead of time on the basis of the computer plan.

The first stage of the actual manufacturing process involves unpacking of prepainted[32] rolled steel sheet, which is then placed onto a CNC punch-press which forms the sheet to the size required by the next model on the line. Once the basic box is formed, it proceeds down a manually-propelled line for assembly. All parts except for the motor/compressor assembly require neither welding nor screws for assembly; the punch press folds a lip into the metal which is simply fitted into a corresponding lip and hammered in with a rubber hammer. All stages of the manufacturing process involve little more than snapping predesigned parts into place. In general, the process is clean, quiet, and rapid.

The key element in this plant's success for our purposes is the link made between manufacturing flexibility, skills acquisition, and niche marketing. Like the South African firm visited, this company began early in this century as an assembler of parts imported from the USA and UK. It was heavily protected for the first 20 years of its life by tariff

[32] Pioneered by this firm.

barriers erected and maintained by successive Labour governments, which obscured the fact that its products were not internationally competitive. It also set up a series of sole franchise agreements with retailers which effectively prevented any other products from getting into shops. The company's subsequent transition from assembler to a manufacturer is of interest. After having assembled imported kits for over 20 years, management realised that it would never be able to export or compete against a rapidly rising tide of imports unless it began to design and manufacture its own products. Most importantly, the products it was assembling in the early 1960s were designed for mass production runs in a large market, and were thus inappropriate for New Zealand's tiny (3m) population or for small, specialised export markets.

Instead of aiming for price oriented markets, the company made a strategic decision to aim for quality-conscious, differentiated markets. This effort was ultimately highly successful, and the firm is now strongly export oriented and able to sell its products globally from a tiny market base. How has it managed this? The main elements of its success have been:

- Home-grown flexible automation technology, in which it is a world leader and exporter. Currently the refrigeration plant is capable of producing over 1 400 product variations on a single line. This 'batchless' system was necessitated by its small home market and niche export emphasis. In addition, special materials technologies were developed which allowed the firm to concentrate on manufacture and less on preparation of materials, such as enamelling and painting.
- Product design for niche markets, which has involved creating and supporting a large R&D effort which produces new models which are unavailable elsewhere. A striking example is a variable speed washer which has seen massive export growth in recent months. From a manufacturing standpoint, this has meant focusing on design for manufacturability as a means to overcome scale problems in New Zealand's small domestic market and increase speed and flexibility.
- Incorporation of electronics into products and manufacturing processes, such as the production scheduling system and the variable speed washer.
- Aggressive international marketing. Exports from the plant are more than 60% of output by value and 40% in unit terms, mainly to the Australian market, but also to other destinations.
- Assimilation of work organisation practices which maximise productivity and worker input into the ongoing innovation process. Associated with this was a progressive attitude towards worker and union involvement in decision making and management issues generally.

Skills Restructuring

It is this last item which is of most interest. The company began a major process of internal skills restructuring in 1987, when Muldoon's Labour government was defeated, ushering in an era of Conservative industrial relations policies intended to undermine the role of unions.

On the other side, labour in the plant was represented by a variety of unions who were all covered by national awards which often bore no relation to the plant in question. besides the fact that the national award system was under threat from the government, the plethora of plant-level agreements often resulted in situations where some unions struck whilst others did not. From the union perspective, this undermined worker solidarity and threatened the good relations they had with management. Finally, government legislation passed in 1987 had made it difficult to organise on a craft basis, but easier to organise on an industry basis.

As a result of an 8-day strike in 1988, management and the unions, led by the New Zealand Engineers' Union, began to negotiate a new enterprise agreement which would rationalise existing agreements and define the work practices and pay scales within the company independently of the national awards (Meade, 1990). A key aspect of the eventual agreement, reached in 1990, was a linking of wages with jointly-defined skill levels, abolishing the old system of seniority and job descriptions. In this system, workers could move through a series of broad skill bands within their work area (eg. production, shipping), and within this band accumulate points toward further skill recognition. This they did by learning new tasks, which were rewarded on the basis of a recognised time taken to master it. In this way workers had an incentive to increase their skill level, take an interest in aspect of the plant not directly concerning them, and become flexibly skilled at the same time. Once this system was underway, it was possible to form autonomous work groups and teams.

For its part, management at the plant had to accept union participation in most management structures and worker participation in decision-making regarding the operation of the plant (not its overall strategy). Management also had to agree to full disclosure of financial and other information about the firm which could be used to reach informed decisions.

The results have been impressive: the plant has increased its productivity and cost competitiveness considerably since 1990, and has become a major exporter of white goods to the Australian market. Moreover, since the company-level agreement was reached, the government has passed a bill providing for national recognition of the type of industry skill structures defined at this company.

Part of the company's drive into exports involved the creation of a subsidiary company in Australia which would produce laundry products using the same manufacturing methods as the New Zealand plant. This plant's share of the of the Australian market went from 0% to 15% in little more than two years. It now produces A$40m p.a. of refrigeration equipment, with a daily output of 250 units per day, utilising only 115 production workers (by contrast, the New Zealand plant produces 700-800 units per day with 300 workers). This plant has become very competitive with existing manufacturers in Australia, and looks set to grow even further.

Ingredients for Success?

The competitive success of this firm is based on the following elements, *inter alia*:

- Relatively strong protection until recently, coupled with exclusive franchise agreements with retailers within New Zealand for many years, gave this firm nearly unrivalled dominance of the local market, from which it could generate sufficient cash flow to innovate so aggressively.

- Management willingness to take risks. This is evident in its decision to move into production for export in the 1960s, its willingness to buck the trend in 1987-88 and refused to undermine its unions; its willingness to shape a new skills-based enterprise agreement, and its aggressive marketing of products for export. This far-sighteness is a crucial element of this company's success. The option of sitting on its laurels in the domestic market has certainly always been present.
- A strong technological basis in both products and process design. Developing the capacity to generate and manufacture its own products required a heavy investment in R&D (which the company will not disclose) and access to skilled researchers and engineers. It was fortunate to be located in a country where such skills are in abundance, but also must be given credit for putting them into practice innovatively.
- Close co-operative relations with its labour force. It is hard to imagine such a management attitude in South Africa. Yet this must be one of the most important elements of success.
- A union which was willing to co-operate in restructuring. Again, it is difficult to imagine such a scenario in South Africa — at least to this extent.
- Educated workers possessing basic literacy and numeracy skills, as well as a firm grasp of the overall functioning of the firm and its market.
- Above all, a favourable social and political context. The previous two points are really just way of saying this. As one artisan put it to me: "Don't bother to try this stuff unless you've got the preconditions in place. You've got to trust each other a bit and be prepared to compromise and look at it from the point of view of the firm. Without those preconditions you'll mess it up cos' these structures can be used to sabotage things as well".

What Can the South African Industry Learn From This?

It is tempting to say that South African firms 'should' model themselves after firms such as this one. But the previous comment must be taken seriously. The social and political context in which firms such as this one operate is radically different from our own. South African firms — and unions — must travel a long road before they can seriously hope to succeed as high technology niche exporters.

Nevertheless, there are instructive lessons here. As analysts have often argued, organisational restructuring is a preferable starting point for firms moving into flexible manufacturing. The experience of this firm and of the Australian small appliance firm discussed above show that significant gains can be made without resorting to major investment in equipment and plant. These gains can be both direct, in the form of higher productivity, and indirect, in the sense that a groundwork is laid for further restructuring.

The Australian White Goods Manufacturer

Interviews were also conducted at a refrigeration plant in rural New South Wales belonging to Australia's largest manufacturer of white goods. This plant had been a munitions factory during World War two, and was sold to the country's largest appliance manufacturer afterwards. It is a sprawling complex covering almost 1 000 acres and housing several separate factories. The plant employs 1 300 workers, 1 000 of whom were direct factory operatives. It produces 160 000 units per year, roughly 60-65% of Australia's total appliance market.

The main lessons to be learnt from this plant are the effectiveness of direct investment by foreign firms in prompting restructuring, and the dangers of responding through investment in hardware. The firm in question has had a commanding share of Australia's white goods market for some time, and had traditionally been a brand leader earning high premium. Management at the plant has been slowly introducing new production methods such as JIT with success for some time, but was jolted into more rapid action when the New Zealand firm opened its subsidiary in Queensland in 1990. As we have seen this led to a very rapid shift in market share, mainly at the Australian firm's expense.

In response, the firm decided to invest in a nearly fully-automated Computer Integrated Manufacturing (CIM) facility to produce a new line of fridges. Its rationale for doing so was to achieve the kind of flexibility which characterises the New Zealand subsidiary. According to a union representative who took me through the plant, however, the firm lost a great deal of money in setting up and debugging this facility, and nearly went bankrupt. Further discussion revealed that the firm had not undertaken any training or organisational restructuring — setting up teams, training workers to engage in maintenance, instilling initiative and quality consciousness — prior to investing in the CIM facility. Most importantly, it had not addressed the issue of skill demarcation and flexibility, and found it nearly impossible to staff the CIM line adequately as a result.

This anecdote reaffirms the point made above: it is far better to start small and restructure work practices, redefine skill to include flexibility, and build in incentives for further skill acquisition than to jump straight into a major investment such as CIM.

3. Summary and Conclusion

a) Basic Points and Issues for Policy

To summarise the points made in this section:

1. White goods manufacturing in South Africa has historically been based on a mass-production model, suited to the needs of an urbanising white population who were mainly first-time buyers. This encouraged investment in dedicated production machinery and standardised models for mass production. This approach is no longer suitable in conditions of market fragmentation between low-, middle-, and high-income buyers.

2. South African white goods producers suffer a major disadvantage in terms of overhead costs, based primarily on very low production volumes relative to overseas plants. This does not mean that the problem with the South African white goods industry is volume. High overheads are rather the symptom of a manufacturing process designed for mass production in a society which does not have a mass market for the kind of products for which it is designed.
3. The WGI does suffer significant cost disadvantages which make it uncompetitive internationally. The question is whether they can be solved, and whether the solutions are to be found inside manufacturing firms or in the external environment.
4. In nearly every product category, excess material costs are the largest single factor contributing to the price disadvantage of South African white goods versus imports.
5. Partly as a result, South African white goods are uncompetitive with imports even with duties. Nevertheless, if their value added, import savings, and cost-raising impact is taken into account, most white goods products provide a reasonable net contribution to the economy.
6. White goods firms' strategy is driven largely by the need to maintain wholesale margins, not manufacturing competitiveness as such. Manufacturing philosophy is one of 'break even'; value added is seen to arise primarily in the market as 'brand premium'.
7. The experience of the New Zealand firm visited suggests that it is possible to achieve export competitiveness on the basis of flexible production technology and a consultative approach to management, coupled with access to sufficient technological expertise to design and develop original products and processes. This may be a tall order for South African firms, however.

E. Conclusion

This lengthy chapter has surveyed the principal components of the South African HED industry from the perspective of case studies. This is not an optimal way to undertake such as task, but as explained in the Introduction, circumstances left little choice.

Three questions remain at the end of this process. Firstly, how generalisable are these conclusions? Secondly, given the comments throughout the chapter about the need for industrial restructuring, what are the chances that these firms will be able to achieve it? Thirdly, what industrial policy should South Africa adopt towards these industries?

The third question will be addressed in the next and final chapter. The first two will be addressed briefly here.

Unfortunately it was impossible to conduct anything like a 'survey' of South African HED manufacturers. However, there are very few of them in any case. In the case of the television and small appliance industries, all of the major firms were in fact covered. Those white goods plants that were not visited were adjudged to be very similar to the firm visited by that firm and others familiar with the industry. I have every confidence that these conclusions are reasonable statements of the situation in the industry generally — and would welcome response from it.

The question of whether South African HED manufacturers can restructure themselves is largely subjective. There is no reason to suspect that they cannot — just as there is no reason to assume that they would, even if market signals were 'right'. I saw nothing in the course of research that would suggest that these firms could not achieve competitiveness given the right conditions, incentives, and support.

Chapter Six: Policy Proposals

A. A General Assessment of the South African HED Industry

Before going on to make specific policy recommendations for the HED industry, let us first review the situation. First the external context: what opportunities are open to it, and what are the principal constraints it faces? Then the internal situation of the industry: what are the HED industry's principal strengths and weaknesses?

1. Core Opportunities

1. The present poor state of the HED industry is due to a number of factors which do not appear to be intrinsic to the products it produces or the technologies and techniques used to produce them. There is no reasons, in other words, why South African cannot be competitive producers of HEDs. Instead, it should be recognised that the HED industry:

- is entirely dependent on consumers' discretionary incomes, which have been under severe strain since the early 1980s;
- has a history of heavily protected import substitution which has shaped its structure and practices strongly;
- is structurally oriented towards the needs of middle-income whites.

2. South Africa is a potentially low-cost producer of the basic raw materials required by the HED industry: metals and plastics. At present exploitative institutional structures, protective trade policies, and possibly high capital costs determine the high cost structures of these markets. As a principle these materials should be beneficiated locally and used by downstream manufacturing industries.

3. South Africa has a relatively highly developed light engineering sector oriented towards the mining and agricultural sectors and to an extent the defence establishment. This industry is invaluable to further development of the manufacturing sector for several reasons:

- *Firstly*, with appropriate reorientation, the light engineering sector has the potential precision to supply components and capital equipment to the manufacturing sector more broadly. This will intensify the employment-creating and forex-saving aspects of manufacturing development and help to avoid the television scenario of import-and-assemble with very low domestic value added.
- *Secondly*, exports of speciality goods on a small-batch or flexible basis can be developed if a sound local market can be used as a springboard. Downstream consumers of such products who themselves require inputs in small quantities, such as the HED industry, may serve as a good training ground for future exports.

- *Thirdly*, significant production technology diffusion and learning effects can emanate from the light engineering sector. Since the mining and defence sectors are in long-term decline, alternative outlets for the light engineering sector are a priority. For this reason metals- and plastics-based downstream industries such as the HED industry should be encouraged if at all possible, particularly when they demand products similar to mining and defence goods.

4. South Africa does not require a high-tech HED industry. Instead, it requires an industry which is capable of flexibly producing low-cost, reliable goods appropriate to a developing country with a massive backlog in housing and urban amenities. This does not mean, however, that production techniques should not be of a world standard, as they very likely must be to be competitive against imports; nor does it mean that the HED industry should not produce high-end products if it can do so profitably. It only means that there is no need for the industry to battle to find sufficient volumes because of an attachment to brand-name marketing strategies and the dictates of foreign technology partners.

5. South and Southern Africa is a potentially huge market with nearly unlimited need for the products of the HED industry. Moreover, it is almost certain the a future government will undertake large-scale housing and electrification programmes which will spur market growth considerably.

6. The industry is owned by large, well-financed conglomerates which could readily afford to re-equip the industry were this warranted by market conditions.

2. Major Constraints

1. The South African HED industry is unlikely to become a major exporter in the near future for reasons discussed above. Global markets for all three types of product are highly competitive and regional, and demand quality, low cost, and rapid response from suppliers. To enter these markets as independent actors is some way off at best, although subcontract sourcing for larger firms may be a possibility

2. The South African economy is in the midst of its worst recession since the War. It remains to be seen whether this is, in fact, a recession, or whether South Africa is entering a period of secular economic stagnation. If so, the disposable income needed to finance an expansion of the HED industry may not be forthcoming. Moreover, political uncertainty will make it difficult for capital owners to justify investment in the South African market for some time to come.

3. The input supply chain of the industry is a substantial barrier to competitiveness in final product manufacture. It is regarded as slow, inefficient, and costly. This applies equally to manufacturers of raw materials. This problem is pervasive, and circular: a healthy component industry requires a healthy final product industry, and vice versa. Breaking this cycle may require either a period of free importation of inputs to establish healthy assembly operations, or a concentration on exports of components under contract to offshore assemblers, Asian-style.

4. State policy towards the HED industry has been inconsistent and contradictory. In particular, tariff policy has attempted to encourage both final product assembly and

component manufacture simultaneously. This results in low net tariffs for final product assemblers, and reduced volumes for component suppliers - no one is served well. Unless there is a major revamp of tariff policy, the HED industry, like other manufacturing industries, will be unwilling to invest.

5. Unpredictable inflation and exchange rates will continue to wreak havoc with export attempts and import-intensive manufacturers. This may be one of the most serious - and least controllable - barriers to competitiveness.

3. Strengths

1. The HED industry is here. This gives it better access to retailers, better understanding of local market conditions, and an ability to deliver in smaller quantities more frequently. It also facilitates service, which is a major concern locally. Location is also an advantage with respect to transport costs when supplying the domestic market.
2. It has faced an historical imperative for flexible production and multi-product lines in the small local market. This may place local firms well to absorb flexible automation technology (although long lead-times from component suppliers, particularly for imported components will make progress in this area difficult).
3. It has established brand names, and linkages to overseas technology partners. This is also a weakness in some ways, as I have argued, but at least it provides access to marketing channels, technology, and components.
4. It has achieved some success in local design. Some original development in materials usage and production processes has occurred, driven mainly by costs imperatives in a tight market.
5. In the cases of small appliance and white goods, local products are not so uncompetitive that they cannot conceivably become exportable.
6. Physical labour productivity is on a par with plants elsewhere in the world in some cases, indicating that South African firms are able to manufacture efficiently; whether they can do so competitively in a context of high input costs, price inflation, and long lead times is another question.

4. Weaknesses

1. The ownership 'culture' of the major producers of HEDs is probably a significant constraint to a strategic reorientation of this industry. As we have seen, management frequently express the view that their primary task is to produce steady financial results. Planned development towards export-orientation through reduced manufacturing costs, as in the Japanese philosophy, does not seem to be part of current thinking. As long as the task of management at operational level is seen as producing quarterly profits, as opposed to manufacturing quality, low-cost products, the cart is before the horse, and in all likelihood significant reinvestment in manufacturing will be a by-product of a prior demand-led upturn in financial performance.

2. South Africa lacks the human resources base to move immediately into sophisticated manufacturing of complex products, either for local consumption or export. Labour productivity and lack of R&D capacity are fundamental constraints. The skills pipeline for industries producing complex electrical and electronic goods in a highly competitive world market is badly underdeveloped. This applies equally to management and engineering staff as to production workers. Skills shortages are pervasive, and less easily rectifiable at management level.
3. The local HED industry is a technology consumer. Technological development in the industry is limited by the small size of the local market and by technology agreements with overseas license holders. This, and the restrictive nature of technology agreements, is a significant barrier to exports beyond the region.

B. What Is Worth Saving and Why?

There are no intrinsic barriers preventing South African HED firms from restructuring themselves to become more competitive and supply a growing local market. Indeed, I would argue that what such firms need in order to do the former is the latter. Until that happens, however, such firms are unlikely to take steps to restructure themselves for quite rational reasons in terms of capitalist economics. In the meantime, several basic conclusions can be stated:

1. Consumer Electronics

a) Audio

The audio branch of the consumer electronics industry is unlikely ever to be in a position to compete with low-cost, mass-production suppliers from the Far East. Should foreign companies wish to invest here, they should be allowed to do so, but in the meantime **the protection afforded audio products should be abolished.** This is unlikely to affect many firms or employees, as most local assemblers seem to have read the writing on the wall some time ago. There is widespread agreement in the industry on this point.

b) Television

Some firms in the television branch may be able to compete at an effective rate of protection of 20-25%. However, this will translate into a continuously rising rate of nominal duty unless domestic inflation can be brought to heel. Given the fact that the major component by value of a television, the picture tube, cannot be produced locally, any firms which do survive at that level will be simple assemblers of imported parts, earning meagre profits only through protection.

The argument that the industry is somehow strategic is fallacious. Technological advancement in this industry comes from research and design activities, not from manufacturing, and it is nearly inconceivable that South African firms could become competitive producers of original-design televisions.

Present levels of labour and capital employment do not justify continued protection of the television industry, which by its own admission cannot survive without it. As we have seen, the foreign exchange costs of imported television parts will be enormous over the course of a 5-year electrification programme. Imports of televisions will also emerge as a significant source of forex drainage during such a process, but ever-falling costs in overseas manufacturing operations suggest that this is unlikely to be as much of a concern as it may have been when the industry was founded 20 years ago. The experience of the SKD 'pirates' also suggests that a mass market can possibly be served by ultra-cheap imports. **For these reasons I would recommend the abolition of protective duties foe the television industry.**

It may turn out that some firms will be able to produce televisions successfully as part of a flexible, multi-product manufacturing process in which capital costs are spread over a variety of other goods, as well. If so, then so bit it; but given the situation with respect to import component pricing, this is unlikely. Ultimately, value added in the electronics filiere, television included, is located at the level of component manufacture.

2. White Goods and Small Appliances

Given their basis in the metals sector, potentially competitive costs, reasonably good management, and local preferences for specific designs, the white goods and small appliances branches will probably be able to survive in the long term. These kinds of products will be demanded strongly by households in the event of an upswing and/or electrification, and will represent a more serious net cost to the economy if completely imported than if they are manufactured under limited tariffs. The experience of small, flexible manufacturers such as the New Zealand firm visited suggest that it is possible to transform this industry into a competitive small-scale exporter given sufficient incentive, opportunity, and assistance.

The focus of industrial policy towards the HED industry, therefore, should be two-fold: to accommodate the loss of the consumer electronics branch, and to facilitate the survival and restructuring of the white goods and small appliances branches. Before discussing the former issue, it is useful to make a few points about the latter.

In the case of white goods, research has been hampered by a lack of access to South African firms. Nevertheless, given the enormous potential demand for these goods, both from new consumers and for replacement, and its nearness to competitiveness in certain key products, I would argue that **there is no *prima facie* reason not to support guided restructuring of the white goods and small appliances branches under appropriate protective policies**. Such policy should be essentially supportive, but interventionist where necessary to force the industry away from its traditional middle-class white markets, dependent as they are on European products and designs.

One reason for arguing this is a recognition that the industry has been deformed by the structural conditions of apartheid capitalism. The following points are salient here:

1. The potential for forex drainage and job loss under full import liberalisation must be weighed against the higher cost to the consumer of protection. This apparent trade-off must be considered, however, in the context of the white goods industry's historical role as an import-substitution pole under apartheid industrialisation. Given the effective

income profile of the South African consumer market up to now, the local white goods *manufacturing* branch has had little option but to concentrate on a now saturated and shrinking market of mainly white middle-income consumers. This has shaped its choice of products in a way which has made it dependent on inappropriate foreign-licensed designs, and encouraged a culture of 'brand-name' and 'quality' commitment in firms. Together these factors have mitigated against aggressive pursuit of low-income consumers through innovative local products. Thus, the local industry has been guided into attempting to serve a limited market which prefers foreign brands and designs, and which would certainly import cheaper foreign products at the first opportunity. This market orientation raises local costs and renders ongoing protection necessary, since there is a built-in relationship between protection and imports. It does *not* necessarily follow that import liberalisation would result in massive imports to the hitherto underdeveloped lower income market, however. Thus, although there *appears* to be a straight formula of High Cost = Lack Of Competitiveness = Vulnerability To Imports, the situation is historical, not intrinsic.

2. The enormous potential market of rising-income blacks and newly electrified households is beginning to stir. The industry appears to recognise that its target market profile is changing accordingly, although commitment to strategic reorientation varies between firms. Should the white goods industry demonstrate a commitment to developing locally-designed low-cost goods appropriate to a South African mass market, the forex/high cost trade-off could be minimised or eliminated altogether. For a move in this direction would have two effects:

- *Firstly*, although it may mean abandoning the higher-income market to imports, it will move the industry into an area where it can finally achieve its coveted economies of scale. This would help to lower the price of white goods for the South African *mass* market to import-competitive levels, perhaps eliminating the major long-term balance of payments threat and preventing job losses. There may also be potential exports of such goods to developing country markets.
- *Secondly*, the lower cost of imported white goods to the middle- to upper-income market may free up discretionary income for other purposes, with beneficial macroeconomic effects.

C. Policy Issues and Proposals

This section presents specific recommendations for policy towards the television, small appliance, and white goods industries. It should be noted that most of these recommendations are in no way specific to these industries; on the contrary, they could be applied to any assembly, fabrication, or engineering operation. Nevertheless, they are important for these industries, for without significant restructuring to face the future, they will not survive.

1. Priorities and Timing

The key general issues to be addressed by policy towards the manufacturing branch of the white goods industry are therefore as follows:

1. Stimulating domestic demand.
2. Restructuring the trade régime in a way which reflects the changing priorities of local manufacture.
3. Encouraging industry rationalisation, if appropriate, to achieve economies of scale, finance, and R&D.
4. Encouraging reorientation towards the local mass market with locally-designed products.
5. Encouraging specific investment in flexible manufacturing capacity in order to lay the foundation for a potential export-orientation towards niche markets.

These policy imperatives should be regarded as sequential. The short-term goal (1-2 years) should be to develop steps to preserve the industry's viable branches. The medium-term goal should be to encourage restructuring and rationalisation (2-5 years). The long-term (5 years) should focus on trade liberalisation *beyond* the initial recommendations made below.

2. Trade Policy

a) Consumer Electronics

A plan for rapid (say, 24 months) reduction of tariffs should be developed and negotiated with the industry, making clear from the outset that the objective is free trade. This will allow it to determine ahead of time how it would respond to increased import competition and give it time to dispose of existing stocks. However, such a trade policy for the branch must be consistent and unwavering, with respect to both industry and labour.

b) White Goods And Small Appliances

1. Up to now tinkering and vacillation with trade policy have served as significant disincentives to investment on the part of local firms. **A firm and long-term approach to tariff policy must be taken in order to encourage investment in this industry.**
2. On the basis of an industry forum assessment of its strengths, weaknesses, opportunities and constraints in specific products, areas should be targeted for local production or abandonment to importation.
3. A flat *effective* (i.e. when tariffs on inputs are considered) duty rate of 25% should be established for product areas (as defined above) to be retained by the industry. **This rate should be subject to an *effective* 5% reduction every two years unless the industry forum can demonstrate to the relevant government agency why this should not be so.** Specific products should be subject to less than 25% protection if possible. Products not to be manufactured locally should be subject to no duty.

3. Withdrawing From Consumer Electronics

1. Unions and organisations from affected communities should be treated as equal partners in the process of withdrawal and involved in all relevant negotiations.
2. Labour re-deployment should be facilitated through a combination of incentives for reassignment with existing employers or other firms. These incentives should be offered to both employers and employees. State assistance with retraining and relocation should be made available in this respect.
3. Incentives in the form of tax grace periods, sunset-clause subsidies, or training should be devised to encourage former employees of this industry who wish to do so to set up businesses in related areas, such as repair, spare parts manufacture, or distribution.
4. Incentives should be devised and offered for re-deployment of assets and capital for firms whose involvement in consumer electronics constitutes a significant proportion of turnover (say, 30-50%). These incentives could take the form of bridging tax credits or sunset-clause subsidies or both.
5. Companies whose assets lose their value as a result of government policy should be recompensed or allowed a tax credit to a degree based on the previous return on those assets over a fixed period (say five years) and the expected life of the asset, less projected depreciation. Similarly, unsold stocks remaining at the end of the period should be allowed a tax credit equal to any loss due to import competition.
6. Existing manufacturers of consumer electronics should be required to maintain service facilities, networks, and spare parts for a reasonable period (say five years).
7. Purely revenue-oriented excise duties on television sales should be abolished or reduced to a minimal level to enable retailers to re-source with minimal disruption. Provisions with respect to existing retail stocks should be applied as for the manufacturing industry.
8. Foreign investment or buy-out of existing firms should be allowed without hindrance. Existing conditions of employment should be maintained in the latter case.
9. Sate expenditure on these policies should be financed out of a limited-period excise duty on sales of imported products.

4. Industry Forum

1. A forum consisting of representatives from industry, labour, supplier, government, retailer and consumer bodies should be established to analyse and make recommendations on the development of the HED industry on an ongoing basis.
2. This forum should be required by legislation to establish an information and research unit which will gather and analyse information on the industry, particularly its training and skills needs, externally-competitive situation, and global trends in export markets and product and production technology. Such a unit should be staffed by representatives from all participants on the industry forum, who should be guaranteed access to all information except that of a genuinely competitive nature.

3. This forum should also serve as a negotiating forum over wages, skills definition and acquisition, and conditions of employment in the HED industry. It is hoped that general metals industry skilling systems will be adopted which will support the principle of continuous skill acquisition.

5. Product Mix and Design

It is clear that the market for high-end HEDs and consumer electronics in South Africa is essentially a replacement market - significant though this may be after several years of recession and falling personal disposable income - although product changes could provide some additional demand. There is a potentially massive market, however, for less sophisticated and expensive products. Such products are characterised by a 'stripped-down' approach based on no-frills and maximum manufacturability.

Some local HED firms feel that they already are well-placed to supply such a market, and claim to produce several products specifically for it. Others feel that existing product ranges will suffice, reckoning that low-income consumers will continue to purchase more expensive goods because of the status attached to them. On reflection the latter attitude does not hold water. We have seen that sales of stoves, in particular, are not keeping place with urbanisation and electrification. This is partly because of the availability of substitutes, but this, in turn, is only an attractive option because alternatives remain so expensive.

Product mix must therefore be carefully thought out. Simple, easy-to-produce goods which serve basic needs are not only the greatest source of potential growth, but will be subject to great import demand if and when growth restarts in earnest. They will also help to break the dependence on restrictive technology agreements with overseas principals and lay the foundation for local R&D activities. This need not be a impractical populist 'people's stove' project; white goods are different from automobiles in that they do not cost as much and are not as subject to brand and model identification. Once you can afford a new car, generally you can afford to be somewhat choosy, for which manufacturers gladly cater; but being able to afford a new stove or fridge does not necessarily mean that you can afford to pay for bells and whistles on such a needed device.

Local firms should be concentrating on supplying these needs. However, if exports are kept as a goal - which they should be - a focus on such goods should not be allowed to detract from the need to keep up with world technological developments in the industry. Indeed, in the long run increased value added will require the development of a technologically competent workforce, which can only be developed through experience with products which are more sophisticated than white metal boxes with a few mechanical and electrical parts in them.

1. Accordingly, government and industry research bodies should be encouraged through tax credits and/or sunset subsidisation to develop local products for the mass market, and to undertake simultaneous research into developments in overseas products with the goal of incorporating their features where possible into local products.
2. Tax credits on development and marketing costs of such products should be allowed to encourage these products to be put into production.

3. Public-assisted provision of basic appliances (see below) should seek to encourage development of low-cost basic goods and local design capacity.
4. It may be necessary to subsidise the cost of retooling for major manufacturers to encourage the production of energy-efficient appliances.

6. Sectoral Restructuring

a) Market Structure

The first and most basic step to strengthen this sector is to **rationalise it in anticipation of increased competition from imports.** This will almost certainly entail some closures or mergers. This is not against the grain of global developments in the HED industries. The trend in the European appliance industry, in particular, is towards larger firms, as the industry leaders buy into smaller regional firms in order to obtain their brand names. This gives the smaller firms access to scale economies in purchasing, marketing, finance, and administration, and to a certain extent in manufacturing.

Certainly the initial situation in South Africa is very different. Nevertheless, the proliferation of manufacturers in certain areas, made possible because of high rates of protection, has led to a situation where protection is *required* since each firm lacks the scale to compete. The solution involves allowing competitive forces - especially from imports - to push the sector towards an 'appropriate' size and composition. The problem is that reducing protection in order to encourage rationalisation will also hurt potentially more competitive firms just when they will need to be gearing up for increased competition from imports.

This implies that rationalisation should take place *prior* to reduction of protection, or at least concurrently. This is a Catch-22 situation: the threat of reduced protection is a potent means to encourage restructuring, but restructuring is itself a prior condition of a successful move away from protectionism. To solve this problem, an interventionist, 'picking winners' approach to restructuring may be necessary. Such an approach will involve several steps, undertaken jointly by the industry forum and government:

1. Based on projections of market growth dynamics and export possibilities (and plans), an estimate of the minimum and maximum sustainable capacities for the HED industry *at various levels of tariff protection* must be developed. The goal should be to develop an industry which is healthy at the lowest possible level of protection.
2. Firms potentially able to form the core of a competitive HED industry must be identified on the basis of specified criteria, which might include *inter alia:*

- The financial health and backing of the firm, as well as the track record of the parent company in supporting innovative manufacturing activities.
- An assessment of the net foreign exchange cost/benefit of production for both the local market and for export, based on the product specifications submitted by the firm.
- Its technological dynamism and capacity to assimilate new product and process technologies.

- It potential for employment maximisation.

3. Once such a core is identified, it should be made clear to the industry that amalgamation is a desired outcome. Subsequently targeted investment incentives or tax credits could be used to achieve this goal. In any case it should be a matter of government policy that no application for protection will be considered on the basis of inability to compete due to insufficient scale.

4. Should it transpire that the domestic market can support an industry of only a few participants or even one, this should be assessed on the basis of potential international competition rather than merely domestic considerations.

b) Investment Incentives

Subsidies and/or tax credits for technological innovation, as well as for use of productivity consultants, are a vital component of any industrial strategy towards an engineering-based industry. If exposure to technological and organisational development in both products and process technology is seen to pay in the short-run, local managements will be much more likely to develop a commitment to their benefits in practice. Nevertheless, careful monitoring of such programmes, as in the case of the innovation support scheme for the electronics industry, must be maintained to ensure that actual results are achieved.

1. **The basic policy should be to create a recognised category for qualitative, rather than merely quantitative investment.** Investment should be recognised to comprise the direct and indirect costs of training, organisational enhancement, and reorganisation of production as well as formation of fixed capital. Investment tax credits, accelerated depreciation allowances, subsidised credit, and/or subsidies could be used to reward investment falling into recognised categories.

2. **The key to the success of such an investment incentive programme will be the ability of the government to assess intelligently the technologies available to the HED industry.** For this reason, the industry forum should be charged with employing impartial researchers to assess such technologies and making regular reports to government on the categories of investment deserving of such support.

3. Where possible, labour saving investments should be favoured, but not at the expense of cost-competitiveness.

4. **Government should sponsor personnel exchanges with overseas firms where possible through the industry forum.**

5. **A tax rebate system should be devised whereby verifiable improvements in manufacturing productivity qualify for an effective reduction in the rate of corporate tax. These rebates should be reversible.**

6. **Provision of financial incentives, including subsidised credit, should be made in cases where firms can demonstrate export potential based on new investment.**

c) Foreign Investment

Direct or equity foreign investment in the HED industry should be encouraged. DFI in particular would serve as a very sharp and immediate reminder to the local industry that it will need to attain and sustain an international standard even if it is to concentrate on local production. Such DFI could be encouraged before protective duties are reduced, and may serve as an inducement to domestic restructuring. Several South Korean, Australasian, and East European firms have expressed interest in the South African market, and it is likely that they would be willing to invest if there were a significant return to be had. Investment incentives, however, should treat foreign firms on the same basis as domestic firms. Where possible, equity investment involving technology transfer should be preferred.

d) Technology Transfer

1. Technology agreements with foreign firms should be subject to government examination and approval.
2. This assessment procedure should be based on the principle of limited duration in which times actual transfer of technological capability should take place.
3. Technology transfer agreements should be required to include provisions for training.
4. Transfer of production technology should be encouraged over product technology. To this end foreign exchange availability should be unrestricted where required for importation of production systems, so long as training is involved.
5. Transfer of product technology involving improved energy efficiency, however, should be encouraged in the same manner as production technology.
6. Provision of financial incentives, including subsidised credit, should be made in cases where firms can demonstrate export potential based on technology acquisition.

e) Ownership Structures

At present the conglomerate-subsidiary form which dominates the HED industry provides mixed benefits. On the one hand, it provides the industry with the level of (potential) financial backing required to re-equip itself and survive poor market conditions. On the other hand, in some cases it imposes an essential conservatism on managements.

1. Policy towards ownership structures depends on an ongoing assessment of firms' activities based on the criteria of competitiveness in manufacturing, not accountancy. Government or government-commissioned assessment of the development of the industry's competitiveness and technological dynamism should include consideration of the opportunities and constraints faced by individual firms. Where it appears that viable opportunities for improvement are being consistently passed, government intervention in the form of tax penalties should seek to force principals to treat subsidiaries as manufacturing firms.
2. Where this is insufficient, Competition Board rulings could be used to sever promising subsidiaries from unsuitable owners in the public interest. **In some cases it may be advisable to encourage manufacturing operations to establish themselves as independent operators.**

f) The Supply Chain

The goal of policy should be to encourage localisation of inputs, but only insofar as this can be done without significantly raising the costs of local manufacturers. In the case of the white goods and small appliances branches, this is facilitated by the potential competitiveness of their main suppliers of raw materials, and their relatively simple component requirements.

1. Trade policy towards the component sector should involve a realistic assessment of which components can be sourced locally. Such ongoing assessment should be undertaken by the industry forum in conjunction with government.
2. As a principle, local component costs should be considered unacceptable when they rise above the rate of protection for the final product. Rates of protection for such industries should be identical to those of the final product industry.
3. Rebates of duties on imported components to encourage local sourcing should continue to be used as an interim measure.
4. Viable components industries should be specifically targeted for a restructuring process similar to the one discussed above for the final producers.

7. Labour, Training, and Skills

1. Labour should be treated as an equal partner with employers in the context of the industry forum.
2. **A skills and training sub-committee of the industry forum should be established to make and update recommendations as to specific skills required by the industry to the relevant metals industry training board.**
3. **Skills acquisition and qualitative development of labour resources should be treated as supportable investment by tax, credit, and subsidy policy.**
4. **The industry forum should regard as its initial and ongoing priority the training and education of workers' representatives in the essential aspects of the industry.**

8. Export Assistance

1. **Export assistance should be made available on a sunset basis.** The goal of such assistance should be to *introduce* domestic firms and foreign markets to one another.
2. **Assessment of export assistance should be based on the two-stage principle of learning and profitability.** Initial learning should be regarded as worthy of support, but only if it leads to profitable exports.
3. **Ongoing export assistance should mainly take the form of marketing and trade assistance rather than subsidisation.**

9. Demand Management

This is the most important short-term area for policy. The fundamental goal of this set of policies should be to (i) encourage *sustainable* development of demand, and (ii) to avoid singling out the HED industry as a tool for demand management.

a) Macroeconomic Management

1. Domestic macroeconomic demand and money supply management should cease to single out the HED market in cases of overheating or inflation. Quantitative credit controls, increased mandatory deposits, and unpredictable interest rates damage the manufacturing industry more severely than any other in times of slowdown. General interest rate policy and competitive determination of interest rates should more properly be the tools used to manage demand and money supply. As a principle, lending conditions and procedures in the retail sector should be left to market determination and assessment.
2. Tax deductions for interest costs and depreciation on investment in certain categories of basic household durables should be allowed to private income tax payers on the principle that they are part of the 'capital stock' of the home.

b) Public Appliance Distribution

1. All publicly-financed or supported schemes to encourage appliance use should strive to encourage energy efficiency, development of the local manufacturing industry, and serviceability.
2. New state-sponsored housing schemes should include a requirement for provision of basic appliances, including stove or hotplate, refrigerator, iron, kettle, and toaster.
3. ESKOM's current plans to supply basic small appliances with new hook-ups should be continued. This should take the form of vouchers for purchase of items from private retail outlets where possible, but otherwise through direct provision through state contract.
4. Tenders for state contracts to supply household appliances should include requirements for manufacturing technique and reinvestment or proceeds for improved manufacturing capability.
5. Tenders for state contracts should not be limited to local firms.
6. Low-cost public finance schemes for the purchase of household appliances should be devised and administered by municipalities and could be financed through an industry levy, ESKOM, or both. Where possible these should operate through group credit schemes organised through community organisations. Stokvels should also be encouraged.
7. Public communal washing facilities could be used to encourage use of washing machines.

c) Other

1. The present Transvaal housing regulations, which require basic appliances to be provided with rental accommodation, should be extended to the rest of the country. This should be subject to sub-municipal assessment of local conditions, however.
2. The industry forum should be encouraged to undertake non-specific advertising on behalf of the industry, to encourage consumers to switch from solid-fuel appliances. This could be financed from a levy on manufacturing firms.
3. Electricity prices should encourage the design and demand for energy efficient appliances, as should product specification regulations and rebates to consumers.

d) Credit

1. The government, in conjunction with the industry forum, should create a publicly-guaranteed financial institution for the finance of household durables purchases by low-income households. These should operate through community organisations or municipal councils (see above).
2. HP regulations should be streamlined, standardised, and regarded as long-term. Market forces should be left to determine interest rates, deposits, and lending levels at retail level.
3. Major banking institutions should be encouraged to establish 'durables banks' along the lines of those operating in the auto industry. This would reduce retailers' balance sheet exposure to customer debt.
4. Manufacturers or their parent companies should be encouraged to establish their own financial institutions to support household durables purchases.
5. Public finance should not be used to subsidise poor financial administration by retailers, manufacturers, or banks. Nevertheless, subsidy-participation schemes for purchases by qualifying low-income households could be devised for use on a pre-purchase basis.

e) Taxation, Excise Duties and State Revenue

The basic principle of this set of policies should be to encourage the development of the manufacturing sector through public demand and to replace indirect taxation with taxation of healthy corporate sources.

1. VAT on basic household durables should be reduced to encourage consumption. In the case of low-income financial or public provision schemes, it should be zero-rated.
2. Excise duties on basic household durables should be abolished.
3. Excise duties on non-essential products and a portion of customs revenue from import duties on household durables should be earmarked for use in financing aspects of investment and demand policy for the industry.
4. Import surcharges should be used only for management of the balance of payments and not as a form of additional protection.

5. Levies or mandatory investments by the insurance giants could be used to finance public provision or finance schemes.

Bibliography

A. Abbreviations

AMAP	Amalgamated Appliance Producers
AMEU	Automotive Metals, and Engineering Workers' Union (Australia)
ANC	African National Congress
BAC	Barlows Appliance Company
BoP	Balance of Payments
CE	Consumer Electronics
CFC	Chloroflourocarbon
CIF	Carriage, Insurance, and Freight
CIM	Computer Integrated Manufacturing
CKD	Completely Knocked-Down
DAMSA	Domestic Appliance Manufacturer's Association
DC	Developng Country
DME	Developed Market Economy
DRC	Domestic Resource Cost
EFS	Electric Freestanding Stove
ERP	Effective Rate of Protection
ESKOM	Electricity Supply Commission of South Africa
FOB	Free On Board
GDP	Gross Domestic Product
HDTV	High-Definition Television
HED	Household electrical durables
HFC	Hydroflourocarbon
HP	Hire-purchase
IC	Integrated Circuit
IC	Integrated Circuit
ISIC	International Standard Industrial Classification
JSE	Johannesburg Stock Exchange
KIC	KIC (Pty) Ltd.
NATPAN	National Panasonic
NNI	Net National Income
PAC	Pan-Africanist Congress
PCB	Printed Circuit Board
PCE	Private Consumption Expenditure
PDI	Personal Disposable Income
SAB	South African Breweries
SABC	South African Broadcasting Corporation
SABS	South African Bureau of Standards
SACP	South African Communist Party
SAI	Small Appliances Industry
SAMA	South African Small Appliance Manufacturers' Association
SANLAM	Suid-Afrikaanse Nasionale Lewens Assuransie Maatskappy
SAP	Structural Adjustment Programme
SARTMA	South African Radio and Television Manufacturer's Association
SIC	Standard Industrial Classification

SITC	Standard International Trade Classification	TEK	Tek Corporation
SKD	Semi Knocked-Down	TVI	Television Industry
SME	Small and medium enterprise	VEDP	Value for Excise Duty Purposes
		WGI	White Goods Industry

B. Government Publications

1. Board of Trade and Industry:

1984: *Report No. 2434: Investigation Into the Television Receiving Set Manufacturing Industry* (Pretoria, Government Printer).

1986: *Verslag No. 2497: Bykomende Maatreëls ter Beskerming van Die Bedryfstak wat Televisie-Ontvangtoestelle Vervaardig*, (Pretoria, Government Printer).

1989: *Report No. 2751: Development Strategy Including a Revised Tariff Structure to Guide the Television Receiving Set Manufacturing Industry with a View to Reducing its Foreign Exchange Requirements* (Pretoria, Government Printer).

1991a: *Report No. 3017: Review of the Develoment Strategy for the Television Manufacturing Industry based on a Revised Tariff Structure* (Pretoria: Government Printer).

1991b: *Report No. 3099: Amendment of the Development Programme for the Industry Manufacturing Television Sets* (Pretoria: Government Printer).

2. South African Reserve Bank:

1991-2: Annual Economic Reports

1992: *SARB Quarterly Bulletin*, September (Pretoria: Goverment Printer).

3. Central Statistical Services:

1984 *Manufacturing Statistics*, May.

Various: *Quarterly Bulletins of Statistics* (Pretoria: Goverment Printer).

Foreign Trade Statistics for Calendar Years 1988 and 1990; *Monthly Bulletin Of Trade Statistics*, January-October 1991.

1985: *Census of Manufacturing, 1985* (Pretoria: Goverment Printer).

4. Department of Customs and Excise:

Various: Trade Statistics, Annual and Quarterly (Pretoria: Goverment Printer).

5. Central Economic Advisory Services:

1992: Statisitical database of production and trade, 1972-1991.

C. Journal Articles

1. Advertising Age:

1990: 'Whirlpool Striving to Clean Up Europe', March 5.

2. Hirsch, S.:

1976: 'Measuring Comparative Advantage: Local Cost of Foreign Exchange', World Bank Economic Devlopment Institute, June 1976.

3. Januzzi, G. De M., and Schipper, L.:

1991: 'The Structure of Electricity Demand in the Brazilian Household Sector', *Energy Policy*, November.

4. Schydlowsky, D.:

1984: 'A Policymaker's Guide to Comparative Advantage', *World Development*, 12/4.

5. Warr, P.:

1992: 'Comparative and Competitive Advantage in Manufactured Exports', World Bank Economic Devlopment Institute, mimeo.

6. Wells, J.:

1977: 'The Diffusion Of Durables In Brazil And Its Implications for Recent Controversies Concerning Brazilian Development', *Cambridge Journal of Economics*, vol 1.

D. Commercial Surveys

1. All-Market Product Survey:

1992: "Appliance Ownership in South Africa", mimeo.

2. Business Market Intelligence:

1985-1992: *Report on the Electronics Industry* (Johannesburg: BMI, Annual).

3. Bureau of Market Research:

1992: *Forecast of Retail Sales in South Africa, 1993.* University of Pretoria.

4. Electronic Industries Federation:

1992: Position Paper on the Electronics Industry, June.

E. Newspapers

1. Cape Argus:

1991: 24 October

1992: June 18, 22 October

2. Business Day:

1991: July 9, March 15, June 14, 12 and 26 October

1992: 27 March

3. Cape Times:

1992: 9 October

1993: March 23

4. The Economist:

1990: 'Europe's White Goods Industry: Going Through the Wringer', November 10.

1991: 'Purveyors of Dreams', Special Survey of the Consumer Electronics Industry, April 13.

'Intelligent Machines: Kettle Shall Speak Unto Kettle' December 8.

1992: 'Burning Ambition to Succeed', November 10.

5. Electrical Retailing:

1992: Special Issue On Europe

6. Financial Mail:

1991: 'White Goods, Black Market', September 9.

"Not Sitting Comfortably', 8 August.

'M-Net: Not as Easy as Abracadabra', November 29.

7. Financial Times:

1991: 'A Clean Sweep Through Europe', December 15.

'It Will All Come Out in the Wash' November 1.

1992: 'Blowing Hot and Cold Over Europe', February 6.

'GDA Set to Join European White Goods Partnership', July 6.

'Electrolux Seeking Further Acquisitions in Eastrn Europe', July 16.

'White Goods War Washes Over Europe', June 24.

8. The Guardian:

1992: 'Hoover Deal Feuls UK 'Cheap Labour' Row, November 15.

9. The Star (Johannesburg):

1991: February 2, June 18,

1992: 5 May

F. Books

1. South African Chamber of Business:

1991: Concept for the Development of an Industrial Policy for South Africa (Johannesburg: SACOB, 1991).

2. Gelb, Stephen (ed.):

1990: *South Africa's Economic Crisis* (Johannesburg: Ravan).

3. United Nations:

1987: UNCTAD Handbook of International Trade Statistics

1989: UNCTAD Handbook of International Trade Statistics

G. Unpublished Papers

1. Baumann, T.:

1991: 'The Consumer Durables Industry of South Africa,', unpublished paper presented to the Industrial Strategy Project, November 1991.

1992: 'The Household Electrical Durables Industris: Policy Proposals', unpublished paper presented to the Industrial Strategy Project, January 1993.

2. Meade, C.:

1990: 'A New Zealand Case Study: An Innovative Composite Agreement', unpublished mimeo, New Zealand Engineers' Union, Auckland.

3. Mohammed, S.:

1992: 'The Retail Sector for Consumer Durables', unpublished paper for the Industrial Strategy Project.

H. Corporate Publications

Annual reports from Rusfurn, Morkels, Tedelex, and Picapli, TEK Corp, Fisher and Paykel (New Zealand).

Other Industrial Strategy Titles

An Industrial Strategy for the Pulp and Paper Sector

An Industrial Strategy for the Clothing Sector

An Industrial Strategy for the Building Material Supplies Sector

An Industrial Strategy for the Textile Sector

An Industrial Strategy for the Commodity Plastics Sector

An Industrial Strategy for the Mineral Beneficiation and Mineral Based Fabrication Sectors

An Industrial Strategy for the Electrical Distribution Equipment and the Professional Electronics Sectors

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After automobiles, no group of consumer products has played as important a role in the development of manufacturing industry world-wide as has household electrical durables – everyday appliances such as stoves, refrigerators, televisions, hi-fi sets, and the various small appliances. Whether they are employed for household labour saving or for entertainment, household electrical durables have come to play an indispensable role in the late twentieth century lifestyle. As a result, these products are important for both the development of South African manufacturing *and* the well-being of the country's inhabitants.

Given this dual role, what should industrial policy towards the household electrical durables industries seek to foster – local content, even if more expensive to the consumer, or a reduction in product price, even if this means increased importation of some products? What impact will housing and electrification programmes have on the industry and the economy?

These and related questions form the topic of Ted Baumann's Industrial Strategy Project Report.

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